PART A

IONOSPHERIC DATA

ISSUED
JUNE 1957

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

CRPL-F 154
PART A

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
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Issued
24 June 1957

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CONTENTS

SYMBOLS, TERMINOLOGY, CONVENTIONS

Beginning with data reported for January 1952, and continuing through December 1956, the symbols, terminology, and conventions for the determination of median values used in this report (CRPL-F series) conform as far as practicable to those adopted at the Sixth Meeting of the International Radio Consultative Committee (C.C.I.R.) in Geneva, 1951. Excerpts concerning symbols and terminology from Document No. 626-E of this Meeting are given on pages 2-7 of the report CRPL-F89, "Ionospheric Data," issued January 1952. Reprints of these pages are available upon request.

Beginning with data for January 1957, the symbols used are given in NBS Report 5033, "Summary of Changes in Ionospheric Vertical Soundings, Observing and Scaling Procedures - Effective 1 January 1957," which draws upon the First Report of the Special Committee on World-Wide Ionospheric Soundings (URSI/AGI), Brussels, Sept. 2, 1956. A list of these symbols is available upon request.

In the Second Report of the Special Committee on World-Wide Ionospheric Soundings of the URSI/ACI Committee, May 1957, a new descriptive letter was introduced:

M Measurement questionable because the ordinary and extraordinary components are not distinguishable.

There was an expansion in meaning of the following:

Z (1) (qualifying letter) Measurement deduced from the third magnetoionic component.
(2) (descriptive letter) Third magnetoionic component present.

Beginning with data for January 1945, median values are published wherever possible. Where averages are reported, they are, at any hour, the average for all the days during the month for which numerical data exist.

The following conventions are used in determining the medians for hours when no measured values are given because of equipment limitations and ionospheric irregularities. Symbols used are those given above.

a. For all ionospheric characteristics:

Values missing because of A, C, F, H, L, N, R or S are omitted from the median count.

b. For critical frequencies and virtual heights:

Values of foF2 (and foE near sunrise and sunset) missing because of E are counted as equal to or less than the lower limit of the recorder. Values of h'F (and h'E near sunrise and sunset) missing for this reason are counted usually as equal to or greater than the median. Other characteristics missing because of E are omitted from the median count.

Values missing because of G are counted:

1. For foF2, as equal to or less than foF1.
2. For h'F2, as equal to or greater than the median.

The symbol W is included in the median count only when it replaces a height characteristic; the descriptive symbol D, only when it replaces a frequency characteristic.

Values missing for any other reason are omitted from the median count.

c. For MUF factor (M-factors):

Values missing because of G or W are counted as equal to or less than the median.

Values missing for any other reason are omitted from the median count.

d. For sporadic E (Es):

Values of fEs missing because of E or G (and B when applied to the daytime E region only) are counted as equal to or less than the median foE, or equal to or less than the lower frequency limit of the recorder.

At night B for fEs is counted on the low side when there is a numerical value of foF2; otherwise it is omitted from the median count.

Values of fEs missing for any other reason, and values of h'Es missing for any reason at all are omitted from the median count.

Beginning with data for November 1945, doubtful monthly median values for ionospheric observations at Washington, D. C., are indicated by parentheses, in accordance with the practice already in use for doubtful hourly values. The following are the conventions used to determine whether or not a median value is doubtful:

1. If the count is four or less, the data are considered insufficient and no median value is computed.

2. For the F2 layer, h'F or foEs, if the count is from five to nine, the median is considered doubtful. The E and F1 layers are so regular in their characteristics that, as long as the count is at least five, the median is not considered doubtful. A count of at least 5 is considered sufficient for an h'Es median.

3. For all layers, if more than half of the data used to compute the medians are doubtful (either doubtful or interpolated), the median is considered doubtful.

The same conventions are used by the CRPL in computing the medians from tabulations of daily and hourly data for stations other than Washington, beginning with the tables in IRPL-F18.

Ordinarily, a blank space in the fEs or foEs column of a table is the result of the fact that a majority of the readings for the month are below the lower limit of the recorder or less than the corresponding values of foE. Blank spaces at the beginning and end of columns of h'F2 or h'F1, foF1, h'E, and foE are usually the result of diurnal variation in these characteristics. Complete absence of medians of h'F1 and foF1 is usually the result of seasonal effects.

The dashed-line prediction curves of the graphs of ionospheric data are obtained from the predicted zero-muf contour charts of the CRPL-D series publications. The following points are worthy of note:

a. Predictions for individual stations used to construct the charts may be more accurate than the values read from the charts since some smoothing of the contours is necessary to allow for the longitude effect within a zone. Thus, inasmuch as the predicted contours are for the center of each zone, part of the discrepancy between the predicted and observed values as given in the F series may be caused by the fact that the station is not centrally located within the zone.

b. The final presentation of the predictions is dependent upon the latest available ionospheric and radio propagation data, as well as upon predicted sunspot number.

c. There is no indication on the graphs of the relative reliability of the data; it is necessary to consult the tables for such information.

d. The tables may contain median values of either foEs or fEs. The graph of median Es corresponds to the table. Percentage curves of fEs are estimated from values of foEs when necessary.

PREDICTED AND OBSERVED SUNSPOT NUMBERS

The following predicted smoothed 12-month running-average Zürich sunspot numbers were used in constructing the contour charts:

Month	Predicted Sunspot Number										
	1958	1957	1956	1955	1954	1953	1952	1951	1950	1949	1948
December			150	42	11	15	33	53	86	108	114
November		150*	147	35	10	16	38	52	87	112	115
October		150*	135	31	10	17	43	52	90	114	116
September		150*	119	30	8	18	46	54	91	115	117
August		150*	105	27	8	18	49	57	96	111	123
July		150*	95	22	8	20	51	60	101	108	125
June		150*	89	18	9	21	52	63	103	108	129
May		150*	77	16	10	22	52	68	102	108	130
April		150*	68	13	10	24	52	74	101	109	133
March		150*	60	14	11	27	52	78	103	111	133
February		150*	53	14	12	29	51	82	103	113	133
January		150*	48	12	14	30	53	85	105	112	130

*This number is believed representative of solar activity at a maximum portion of the current sunspot cycle.

The latest available information follows concerning the corresponding observed Zürich numbers beginning with the minimum of April 1954. Final numbers are listed through June 1956.

Observed Sunspot Number

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1954				3	4	4	5	7	8	8	9	12
1955	14	16	19	23	29	35	40	46	55	64	73	81
1956	89	98	109	119	127	137	145	148	149	154	157	
1957												

WORLD-WIDE SOURCES OF IONOSPHERIC DATA

The ionospheric data given here in tables 1 to 72 and figures 1 to 144 were assembled by the Central Radio Propagation Laboratory for analysis and correlation, incidental to CRPL prediction of radio propagation conditions. The data are median values unless otherwise indicated. The following are the sources of the data in this issue:

Republica Argentina, Ministerio de Marina:
Buenos Aires, Argentina

Commonwealth of Australia, Ionospheric Prediction Service of the Commonwealth Observatory:
Brisbane, Australia
Canberra, Australia
Hobart, Tasmania
Townsville, Australia

Australian Department of Supply and Shipping, Bureau of Mineral Resources, Geology and Geophysics:
Watheroo, Western Australia

Meteorological Service of the Belgian Congo and Ruanda-Urundi:
Elisabethville, Belgian Congo
Leopoldville, Belgian Congo

Defence Research Board, Canada:
Baker Lake, Canada
Churchill, Canada
Ottawa, Canada
Resolute Bay, Canada
St. Johns, Newfoundland
Winnipeg, Canada

Radio Wave Research Laboratories, National Taiwan University, Taipeh, Formosa, China:
Formosa, China

General Direction of Posts and Telegraphs, Helsinki, Finland:
Nurmijarvi, Finland

Institute for Ionospheric Research, Lindau Uber Northeim, Hannover, Germany:
Lindau/Harz, Germany

The Royal Netherlands Meteorological Institute:
De Bilt, Holland

Central Institute of Meteorology, Budapest, Hungary:
Budapest, Hungary

Icelandic Post and Telegraph Administration:
Reykjavik, Iceland

Indian Council of Scientific and Industrial Research, Radio Research Committee, New Delhi, India:
Ahmedabad (Physical Research Laboratory)
Bombay (All India Radio)
Calcutta (Institute of Radio Physics and Electronics)
Delhi (All India Radio)
Kodaikanal (India Meteorological Department)
Madras (All India Radio)
Tiruchy (All India Radio)

Christchurch Geophysical Observatory, New Zealand Department of Scientific and Industrial Research:
Christchurch, New Zealand
Rarotonga, Cook Is.

Norwegian Defence Research Establishment, Kjeller per Lillestrom, Norway:
Oslo, Norway
Tromso, Norway

Manila Observatory:
Baguio, P. I.

South African Council for Scientific and Industrial Research:
Capetown, Union of South Africa
Johannesburg, Union of South Africa

Research Institute of National Defence, Stockholm, Sweden:
Kiruna, Sweden
Upsala, Sweden

Royal Board of Swedish Telegraphs, Radio Department, Stockholm, Sweden:
Lulea, Sweden

Post, Telephone and Telegraph Administration, Berne, Switzerland:
Schwarzenburg, Switzerland

United States Army Signal Corps:
Adak, Alaska
Ft. Monmouth, New Jersey
Okinawa I.
White Sands, New Mexico

National Bureau of Standards (Central Radio Propagation Laboratory):
Maui, Hawaii
Panama Canal Zone
Point Barrow, Alaska
Puerto Rico, W. I.
Talara, Peru (Instituto Geofisico de Huancayo)
Washington, D. C.

HOURLY IONOSPHERIC DATA AT WASHINGTON, D. C.

The data given in tables 73 through 84 follow the scaling practices given in the report IRPL-C61, "Report of International Radio Propagation Conference," pages 36 to 39, and the median values are determined by the conventions given above under "Symbols, Terminology, Conventions." Beginning with September 1949, the data are taken at Ft. Belvoir, Virginia.

The interpretation of a cell is as follows: U F
32

The U is a qualifying symbol meaning doubtful. Other qualifying symbols are I, interpolated, D, greater than, E, less than, J, ordinary component deduced from extraordinary, and T, value determined by a sequence of observations. Absence of a letter in the upper left position means full weight is given to the observation.

Symbols such as F above are given in the upper right position.

There should be no difficulty in the placing of the decimal point. For the time being, a final zero will be found in each value of foF1. Thus at a later date it will be possible to register more closely scaled values of this characteristic, whenever such are reported.

ERRATA

1. CRPL-F153 (Part A), p. 58, fig. 69: At 00 and 01, Es reading should be <1.5.

2. CRPL-F153 (Part A), p. 71, fig. 121: Delete Es label at 21 and 22.

EXAMPLES OF IONOSPHERIC VERTICAL SOUNDINGS
White Sands, N.M., March 3, 1957

The following ionograms were obtained at the White Sands ionosphere vertical sounding station of the U. S. Signal Corps. They are typical of day and night conditions for March at this geomagnetic latitude (41°). Ionospheric data are scaled directly from these records onto the f-plot, a graph of frequency characteristics vs. time. The f-plot for the day represented by these soundings is found on the following page.

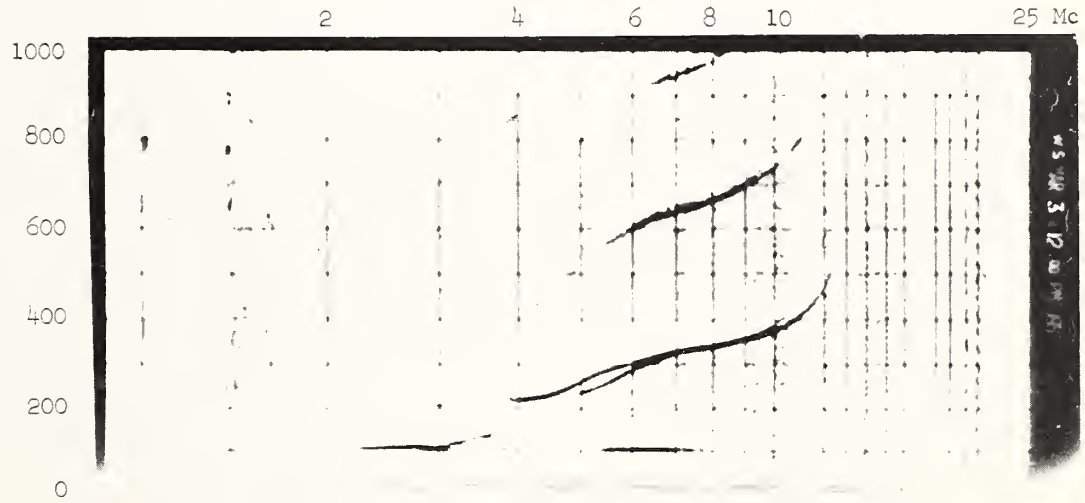


Fig. A. White Sands, March 3, 1957, 1200 hours, 105°W time.

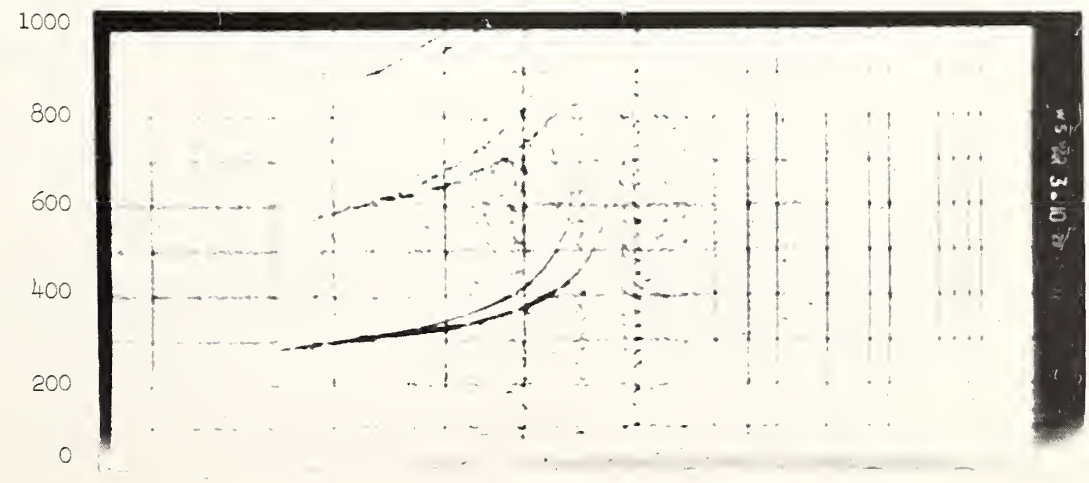
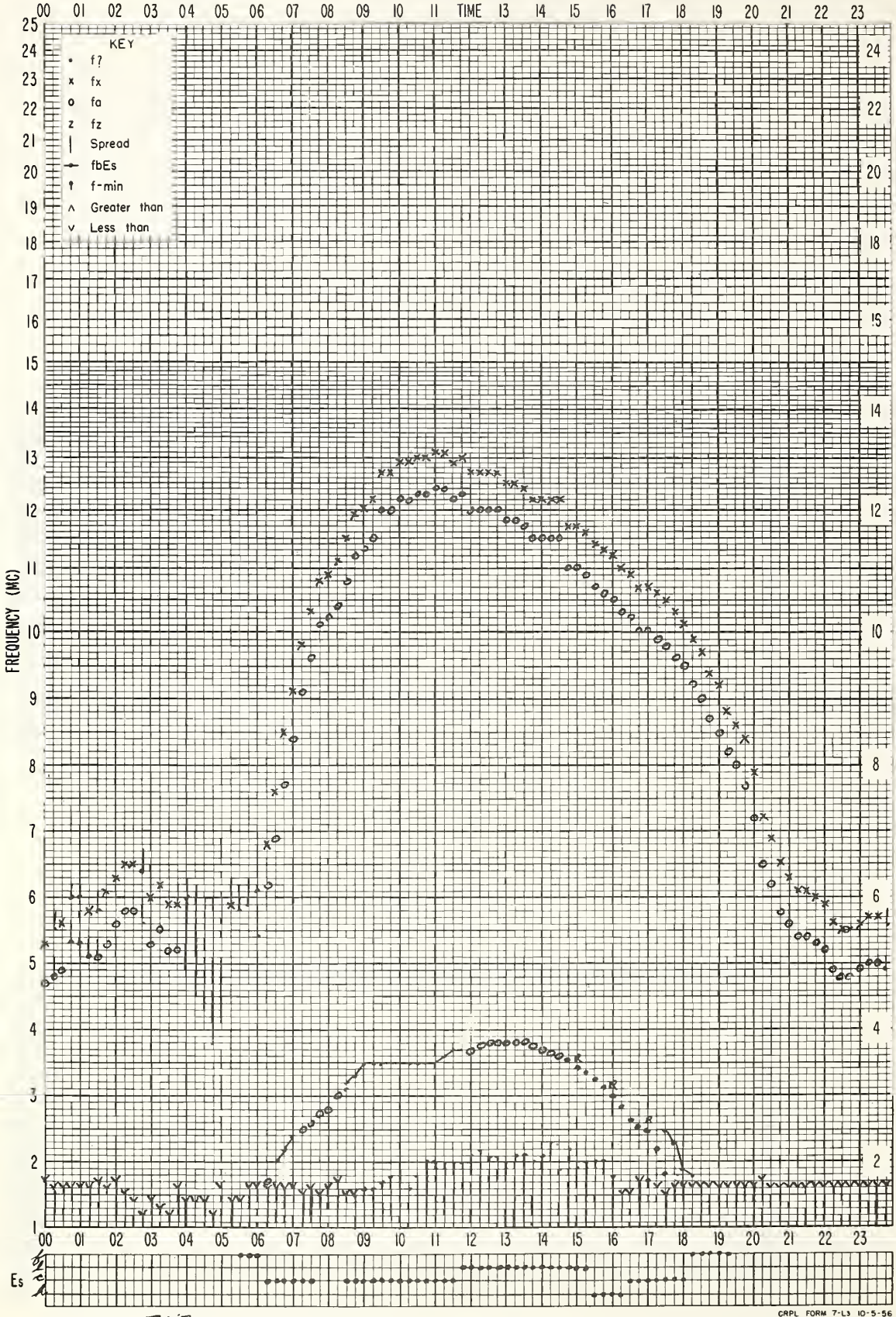


Fig. B. White Sands, March 3, 1957, 2229 hours, 105°W time.

STATION White Sands 105°W f-PLOT OF IONOSPHERIC DATA DATE 3 March 1957



SCALED BY J.A.S.

CRPL FORM 7-L3 10-5-56

Radio Noise Data

The results of radio noise measurements are presented in the following graphs and tables. These are based on three parameters of the noise: (1) the mean power, (2) the mean envelope voltage, and (3) the mean logarithm of the envelope voltage. The mean power averaged over a period of several minutes is the basic parameter and is expressed as an effective antenna noise figure, F_a. F_a is defined as the noise power available from an equivalent lossless antenna in db above ktb (the thermal noise power available from a passive resistance) where

k = Boltzman's constant (1.38×10^{-23} joules per degree Kelvin)

t = Absolute room temperature (taken as 288° K)

b = Bandwidth in cycles per second.

The mean voltage and mean logarithm are expressed as deviations, V_d and L_d respectively, in db below the mean power.

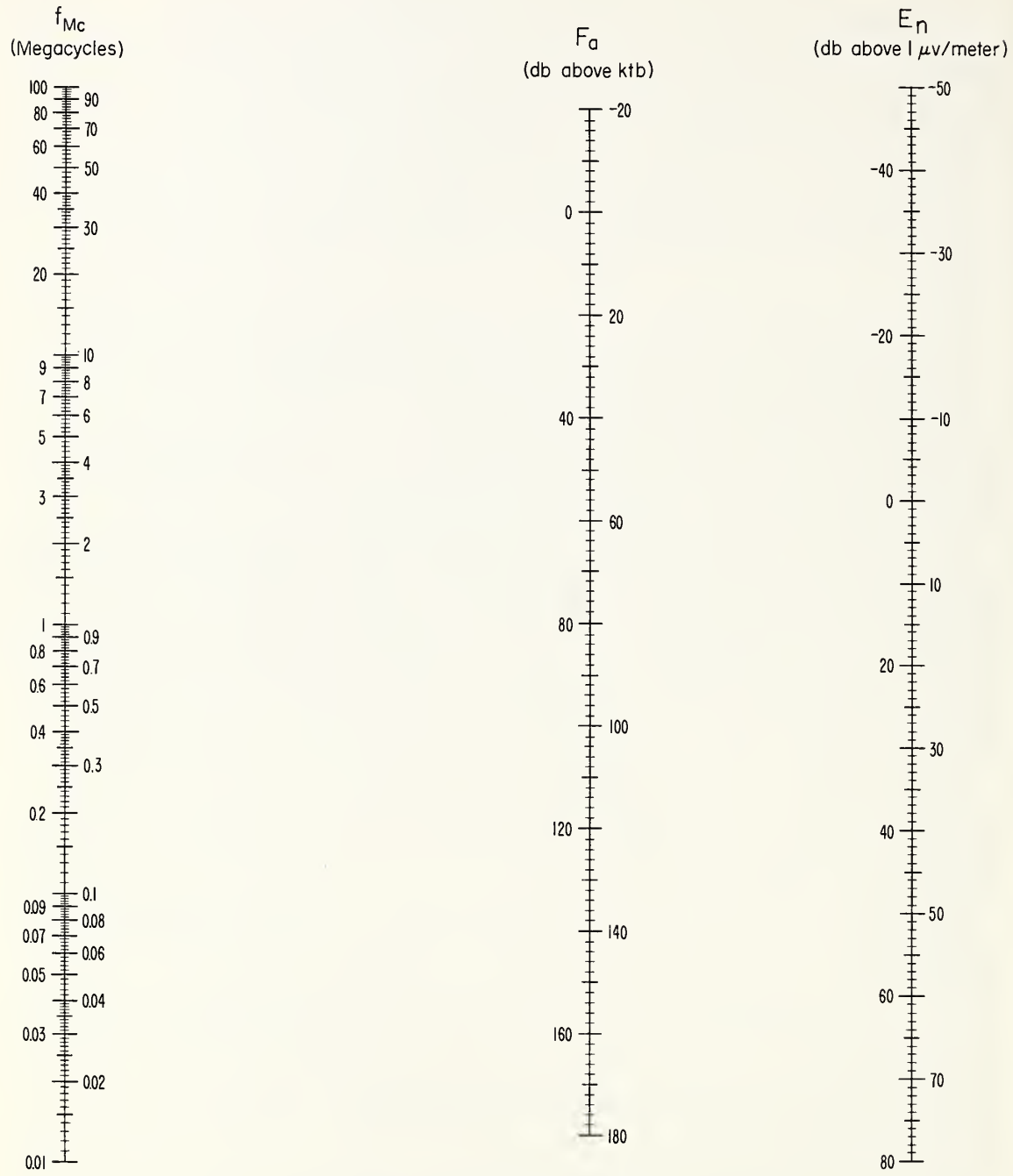
Measurements of these parameters were made with the National Bureau of Standards Radio Noise Recorder, Model ARN-2, which has an effective noise bandwidth of 280 cycles per second and uses a standard 21.75' vertical antenna. A 15 minute recording is made on each frequency each hour, and these 15 minute samples are taken as representing the noise conditions for the full hour. The month-hour medians, F_{am}, V_{dm}, and L_{dm} are determined from these hourly values for each of the corresponding parameters and the resulting medians are plotted at the half-hour point on the curves. Normally from 25 to 30 observations of the mean power are obtained monthly for each hour of the day, and from 10 to 15 observations of the voltage and logarithm deviations. When there are fewer than 15 observations of the mean power, or 7 observations of the voltage and logarithm deviations, the tabulated values are identified by an asterisk (*).

The upper and lower decile values of F_a are also reported in the following tabulation to give an indication of the extent of the variation of the noise power from day to day at a given time of day. These are expressed in db above and below the month-hour median, F_{am}, and designated by D_u and D_ℓ respectively.

To convert F_a to an r.m.s. noise field strength, E_n, the nomogram or the equation on the following page may be used.

Information on expected worldwide noise levels and their application to systems problems is presented in NBS Circular 557 (available from the Supt. of Documents, U. S. Govt. Printing Office, Washington 25, D. C.). More recent estimates of radio noise levels are given in CCIR Report No. 65, "Report on Revision of Atmospheric Radio Noise Data", Warsaw, 1956 (available from the International Telecommunication Union, Geneva).

NOMOGRAM FOR TRANSFORMING EFFECTIVE ANTENNA NOISE FIGURE TO NOISE FIELD STRENGTH AS A FUNCTION OF FREQUENCY



$$E_n = F_a + 20 \log_{10} f_{Mc} - 65.5$$

F_a = Effective Antenna Noise Figure = External Noise Power Relative to ktb Available from an Equivalent Short, Lossless, Vertical Antenna in db Above ktb.

E_n = Equivalent Vertically Polarized Ground Wave R.M.S. Noise Field Strength in db Above 1 μv/meter for a 1 kc Bandwidth.

f_{Mc} = Frequency in Megacycles.

RADIO NOISE DATA

Station Bill, Wyoming. Lat. 43.2° N Long. 105.2° W Type Recorder ARN-2 Month April 11 to May 3 19 57

	Local Meon Time																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	51 kc																							
F_{am}	137	137	136	136	135	132	130	126	124	128	128	130	130	134	132	134	134	134	134	134	137	137	138	136
D_u	5	4	4	4	8	3	3	5	6	4	7	9	7	5	15	14	14	11	8	8	7	9	7	8
D_ℓ	8	7	5	6	10	13	18	9	9	9	10	9	7	8	10	13	15	18	17	9	9	11	8	6
V_{dm}																								
L_{dm}																								
	113 kc																							
F_{om}	118	119	119	120	116	108	104	106	106	104	102	106	110	112	114	118	118	116	116	119	118	120	121	120
D_u	8	7	4	2	21	8	11	8	5	7	12	15	11	9	26	17	15	15	12	8	8	12	8	9
D_ℓ	8	8	6	6	12	14	17	19	19	22	13	10	8	10	26	24	20	19	18	12	8	10	13	9
V_{dm}																								
L_{dm}																								
	246 kc																							
F_{om}	105	105	103	104	93	84	83	83	83	83	83	89	95	96	99	100	97	97	103	105	105	103	107	103
D_u	8	5	5	5	12	15	14	12	12	12	14	14	11	16	31	17	24	19	10	7	11	15	8	11
D_ℓ	13	10	6	6	11	10	10	10	10	11	10	16	20	19	24	24	23	22	23	11	10	11	12	10
V_{dm}																								
L_{dm}																								
	545 kc																							
F_{am}	89	88	89	87	68	65	67	61	67	67	63	67	69	69	73	71	73	74	76	81	84	87	89	86
D_u	9	5	6	7	18	8	5	7	6	5	12	25	19	33	39	37	28	25	19	6	13	13	11	11
D_ℓ	8	6	7	7	8	6	4	3	4	6	3	6	8	4	10	5	8	12	10	8	7	4	5	4
V_{dm}																								
L_{dm}																								
	2.5 Mc																							
F_{am}	67	67	69	69	67	50	36	21	20	20	20	20	20	21	26	29	29	43	55	64	69	69	67	67
D_u	10	8	4	4	8	8	14	9	4	1	5	21	16	20	37	44	33	22	14	9	6	8	8	10
D_ℓ	7	7	10	10	12	12	13	2	3	3	3	3	1	2	7	9	7	13	16	12	12	14	11	11
V_{dm}																								
L_{dm}																								
	5 Mc																							
F_{om}	64	64	63	64	59	50	37	29	21	19	16	18	21	24	30	38	42	50	59	66	64	66	63	63
D_u	4	4	3	4	13	4	10	7	7	5	4	16	10	16	43	22	16	9	5	5	6	6	7	7
D_ℓ	7	5	6	8	5	4	5	5	1	3	2	3	6	9	10	19	18	15	13	5	11	12	8	8
V_{dm}																								
L_{dm}																								
	10 Mc																							
F_{am}	50	50	49	46	47	44	41	36	30	28	28	29	29	35	40	42	46	50	52	54	52	51	51	52
D_u	4	4	5	8	5	4	3	5	8	10	8	7	8	5	10	8	7	4	4	3	6	5	3	4
D_ℓ	7	5	4	2	5	4	5	7	5	3	6	8	7	10	13	13	12	8	8	10	7	8	8	8
V_{dm}																								
L_{dm}																								
	20 Mc																							
F_{am}	25	25	25	24	25	25	27	25	25	25	26	*26	27	27	29	31	32	31	29	27	26	25	25	25
D_u	2	2	2	5	4	4	4	4	4	4	4		6	8	14	8	3	2	4	2	5	4	2	4
D_ℓ	1	1	3	2	3	2	3	1	3	2	4		3	4	4	7	6	4	2	4	3	3	2	1
V_{dm}																								
L_{dm}																								

*F_{am} - less than 15 observations.

RADIO NOISE DATA

Station Boulder, Colorado Lat. 40.1° N Long. 105.1° W Type Recorder ARN-2 Month March 19 57

	Local Mean Time																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	51 kc																							
F_{am}	127	129	131	127	127	125	123	116	116	118	117	113	115	117	118	119	117	115	123	126	127	127	125	127
D_u	6	8	4	10	10	10	10	13	11	10	5	13	12	10	8	10	12	14	6	7	8	8	10	6
D_ℓ	11	12	14	9	6	8	12	7	13	13	13	8	6	8	9	10	10	8	14	11	10	8	6	6
V_{dm}																								
L_{dm}																								
	113 kc																							
F_{am}	112	116	110	114	114	100	100	102	91	91	88	86	90	92	93	96	100	100	106	112	112	112	112	114
D_u	6	4	10	6	4	18	12	6	19	17	18	18	18	17	20	17	8	10	8	6	6	8	8	6
D_ℓ	13	14	8	12	14	10	15	20	11	11	10	6	8	8	10	13	18	16	16	22	8	8	10	12
V_{dm}																								
L_{dm}																								
	246 kc																							
F_{am}	98	101	97	95	97	89	81	85	79	83	80	81	79	81	80	83	83	83	87	91	95	95	97	101
D_u	18	6	14	14	13	13	22	13	16	11	13	12	10	11	9	7	10	10	14	14	10	10	6	6
D_ℓ	2	14	10	10	12	15	10	14	10	11	8	7	8	6	7	9	8	8	12	8	13	12	12	16
V_{dm}																								
L_{dm}																								
	545 kc																							
F_{am}	86	88	86	84	86	80	74	76	83	76	72	74	72	72	68	76	76	71	77	82	84	88	88	88
D_u	6	6	6	6	7	8	8	10	7	6	6	2	6	6	7	2	2	13	9	8	7	6	4	6
D_ℓ	17	11	8	8	10	12	6	8	9	16	7	9	10	6	7	10	9	3	13	9	12	14	14	9
V_{dm}																								
L_{dm}																								
	2.5 Mc																							
F_{am}	64	64	64	64	62	60	50	46	44	44	44	44	44	44	42	45	44	46	50	60	60	60	62	66
D_u	6	8	6	6	6	8	10	10	10	4	4	4	2	10	13	4	4	6	10	8	10	10	6	4
D_ℓ	8	6	10	8	8	12	4	4	4	2	4	4	2	2	0	3	4	4	11	12	8	6	8	6
V_{dm}																								
L_{dm}																								
	5 Mc																							
F_{am}	59	58	58	60	58	55	52	40	38	38	38	36	36	36	38	38	40	44	54	58	58	58	58	60
D_u	5	6	4	2	4	5	8	10	6	2	2	4	4	5	2	4	4	6	4	2	4	4	4	2
D_ℓ	7	4	2	4	4	7	10	6	4	4	6	4	4	4	6	4	6	7	13	6	4	4	4	6
V_{dm}																								
L_{dm}																								
	10 Mc																							
F_{am}	45	45	47	47	45	41	41	37	33	30	27	27	25	29	29	33	29	43	45	45	45	47	47	47
D_u	4	4	2	2	6	4	4	6	8	6	9	4	10	8	10	13	8	6	6	4	6	3	5	4
D_ℓ	7	4	6	4	4	4	6	4	6	4	3	4	2	6	6	7	10	6	4	4	2	4	4	6
V_{dm}																								
L_{dm}																								
	20 Mc																							
F_{am}	22	22	22	22	23	24	26	28	28	27	28	28	26	28	30	30	32	32	32	30	28	26	22	22
D_u	3	2	2	2	1	4	6	4	4	5	3	4	6	4	5	6	4	4	4	12	9	10	14	6
D_ℓ	0	0	0	0	1	2	4	3	4	5	6	4	2	3	5	6	6	4	4	7	6	4	0	0
V_{dm}																								
L_{dm}																								

GPO 845918

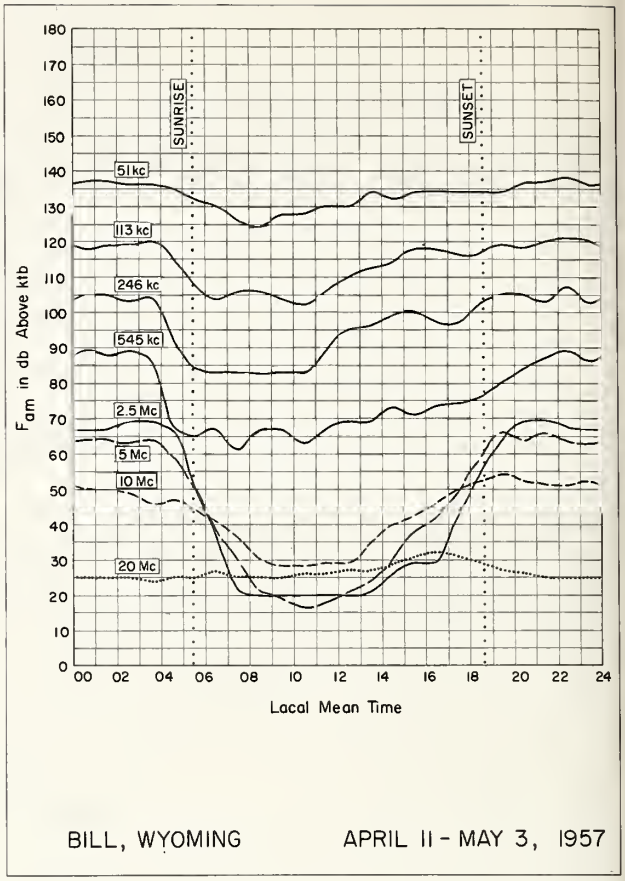
RADIO NOISE DATA

Station Boulder, Colorado Lat. 40.1° N Long. 105.1° W Type Recorder ARN-2 Month April 19 57

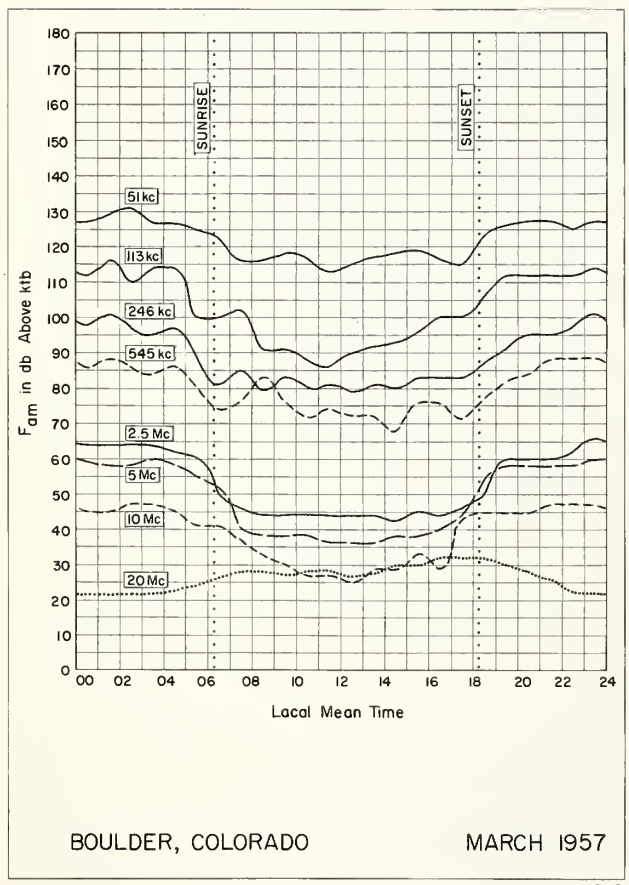
	Local Mean Time																							
	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	51 kc																							
F_{am}	134	136	136	136	136	128	128	123	121	126	127	128	128	130	132	132	132	128	130	132	132	132	134	134
D_u	6	4	4	4	4	4	15	8	11	8	6	13	9	7	7	8	9	12	10	9	12	15	12	8
D_ℓ	6	8	9	6	10	11	14	17	14	18	17	14	10	12	13	13	13	13	1.1	10	6	6	8	6
V_{dm}*	7.0	8.0	8.5	8.5	9.5	8.0	7.5	8.0	8.0	9.0	8.0	7.5	9.0	6.5	7.5	8.0	8.0	8.5	8.0	7.0	7.5	9.0	7.0	8.5
L_{dm}*	14.0	15.0	16.0	16.0	17.0	13.5	12.0	12.5	13.0	15.5	14.5	13.5	15.5	12.5	13.0	13.5	14.0	14.5	15.0	14.0	14.0	16.5	13.0	15.5
	113 kc																							
F_{am}	120	122	122	122	122	110	108	105	*103	103	105	103	106	106	108	114	114	115	113	116	117	118	118	118
D_u	6	6	4	4	2	11	10	12		15	14	18	16	17	20	12	13	12	14	15	14	13	12	10
D_ℓ	8	10	7	10	19	20	24	24		18	20	16	16	17	19	24	21	20	14	11	8	9	7	8
V_{dm}*	7.0	7.5	7.5	8.0	11.0	9.0	7.5	9.5	6.0	5.5	6.5	7.5	8.5	8.5	7.5	7.0	8.0	8.0	8.5	7.0	6.0	8.0	7.5	8.0
L_{dm}*	14.5	16.0	17.0	16.5	19.0	15.0	12.5	13.0	11.0	10.0	10.0	12.5	16.0	16.0	14.5	13.0	15.0	15.5	16.0	14.0	13.0	17.0	16.0	17.0
	246 kc																							
F_{am}	107	107	107	109	101	93	89	87	85	83	82	85	91	91	97	99	97	97	97	103	103	105	105	105
D_u	7	7	6	5	9	15	21	16	18	21	20	21	17	17	16	17	18	18	18	16	16	14	12	8
D_ℓ	12	11	6	10	18	19	18	15	14	12	10	12	17	17	19	23	23	22	12	7	7	11	10	10
V_{dm}*	5.5	7.0	5.5	6.5	10.0	3.0	3.0	6.5	5.0	4.0	5.0	7.0	8.0	6.0	5.5	6.5	6.0	6.0	6.0	6.5	7.0	6.5	6.0	7.0
L_{dm}*	10.5	13.0	14.0	14.5	12.5	4.0	6.0	10.0	8.0	7.0	8.0	11.0	14.0	11.0	11.0	13.0	12.0	10.5	13.0	14.0	15.5	13.0	11.5	14.0
	545 kc																							
F_{am}	95	93	93	93	81	75	75	79	81	73	73	75	75	75	77	81	79	79	85	87	89	91	93	93
D_u	6	8	6	6	9	23	9	12	11	15	8	15	15	20	21	17	21	18	11	13	16	13	8	6
D_ℓ	10	8	8	6	15	9	9	11	12	4	3	9	4	8	9	11	6	12	12	10	4	2	6	6
V_{dm}*	5.5	6.0	6.0	7.0	5.0		5.5			4.0	2.5	2.5	5.5	4.0	3.5	3.0	3.0	3.0	5.0	6.0	4.0	5.0	4.5	6.0
L_{dm}*	10.0	11.5	13.0	14.0	8.0		8.0			6.0	5.0	4.0	10.0	7.0	6.0	5.5	7.5	5.0	8.5	10.0	9.0	10.0	9.0	11.0
	2.5 Mc																							
F_{am}	68	69	69	69	69	53	46	43	43	*44	43	45	45	45	45	47	47	49	57	67	67	69	67	67
D_u	7	6	5	5	4	9	9	6	4		5	21	3	4	10	8	12	8	7	8	11	8	12	8
D_ℓ	6	8	8	5	8	6	4	3	2		4	3	4	2	3	6	5	7	13	12	8	11	8	7
V_{dm}	4.5	4.0	4.0	4.5	5.0	4.5	3.5	2.0	1.0	2.0	2.0	2.0	2.0	3.5	4.0	2.0	3.0	3.0	3.0	3.0	3.5	4.0	5.0	4.5
L_{dm}	8.5	8.0	9.0	8.5	8.5	7.5	4.5	3.0	2.0	2.5	3.0	3.0	3.0	4.0	6.5	4.0	6.0	5.0	5.5	7.0	7.0	7.0	8.0	8.5
	5 Mc																							
F_{am}	61	61	61	61	61	51	41	37	35	*36	37	37	37	37	39	42	45	51	57	63	61	61	61	61
D_u	4	5	3	4	2	11	14	4	5		4	5	4	5	6	5	8	8	9	6	8	7	7	4
D_ℓ	4	4	4	4	7	5	4	2	2		6	6	4	3	2	5	9	11	8	10	8	7	7	6
V_{dm}	4.5	5.0	5.0	4.5	5.0	4.5	5.0	3.0	2.0	2.0	2.0	2.0	1.0	2.0	2.0	2.5	3.0	3.5	4.0	3.5	3.5	4.5	4.5	4.0
L_{dm}	8.0	9.0	9.0	9.0	9.0	8.0	6.5	3.0	2.5	3.0	3.0	2.0	3.0	4.0	5.0	5.0	4.5	7.0	7.0	7.5	7.0	8.0	9.0	8.5
	10 Mc																							
F_{am}	48	48	48	46	43	44	38	36	29	29	28	28	29	31	38	41	44	48	50	50	50	50	48	48
D_u	4	2	8	4	7	5	6	3	9	7	6	9	11	9	5	6	5	4	4	4	4	1	4	2
D_ℓ	5	5	7	4	4	6	2	7	3	2	4	2	3	4	10	12	7	6	6	6	6	6	4	5
V_{dm}	4.0	4.0	5.0	4.0	6.0	5.0	4.0	4.5	4.0	4.0	4.5	4.5	3.5	4.0	4.0	4.5	4.0	3.0	3.0	4.0	4.0	4.0	4.0	4.5
L_{dm}	7.5	7.0	7.0	6.5	7.0	7.5	8.0	8.0	6.0	5.5	6.5	6.0	6.0	6.0	6.5	6.5	6.5	5.0	6.0	7.0	7.0	6.5	6.5	7.0
	20 Mc																							
F_{am}	22	22	22	22	22	22	24	22	22	22	24	24	25	25	28	28	30	30	28	24	22	22	22	22
D_u	2	2	2	2	2	6	8	8	10	10	2	7	8	7	5	7	8	5	6	5	10	6	2	2
D_ℓ	2	2	2	2	2	2	4	2	2	2	5	3	5	5	7	6	6	5	5	3	2	2	2	2
V_{dm}	1.5	1.5	1.0	1.0	1.0	2.0	2.0	1.5	2.0	2.0	3.0	2.5	2.0	2.5	2.0	3.5	3.0	2.5	3.0	2.5	2.0	1.0	1.0	1.0
L_{dm}	2.0	3.0	2.0	2.0	2.0	2.5	3.0	2.5	3.0	3.0	4.5	4.0	4.0	4.0	4.0	5.0	5.0	4.5	4.5	3.5	3.0	2.5	2.0	2.0

GRAPHS OF RADIO NOISE DATA

Note: No March data available from Bill, Wyo. This station is operated 1 month per season.

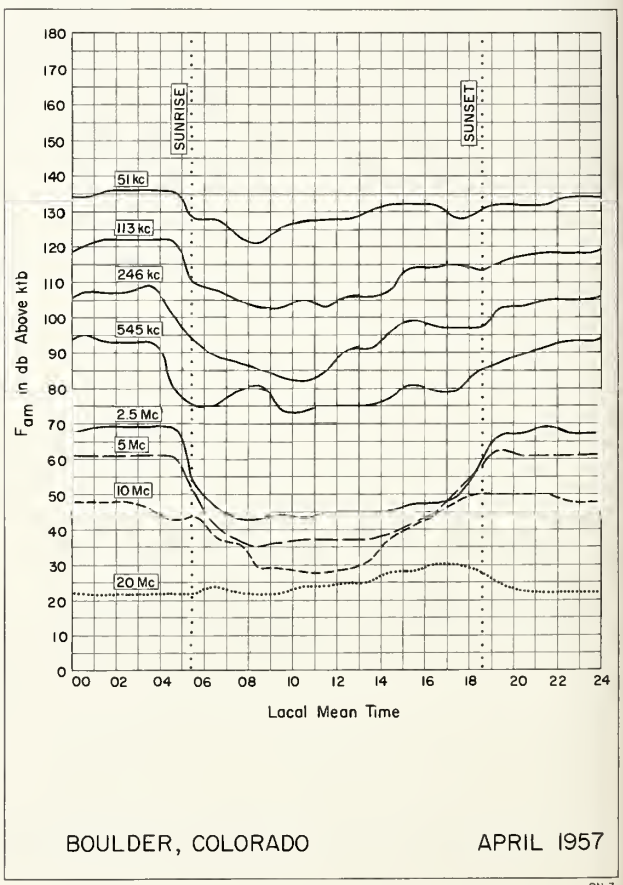


BILL, WYOMING APRIL 11 - MAY 3, 1957



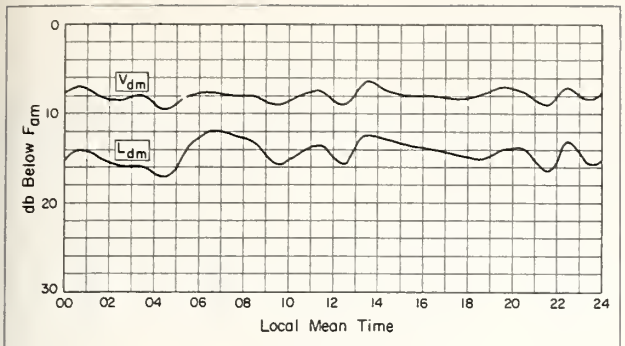
BOULDER, COLORADO MARCH 1957

RN-3



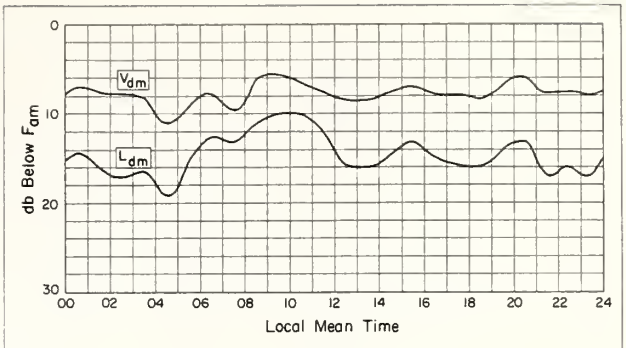
BOULDER, COLORADO APRIL 1957

RN-3



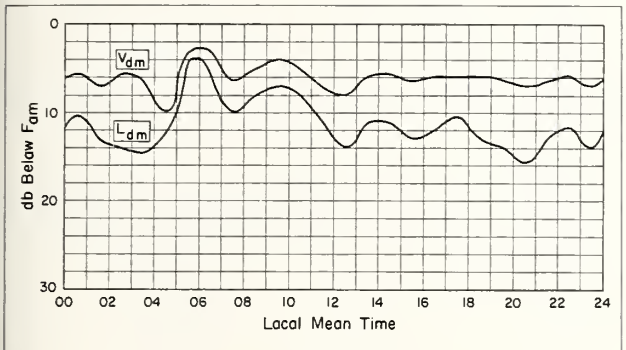
51 kc

BOULDER, COLORADO APRIL 1957



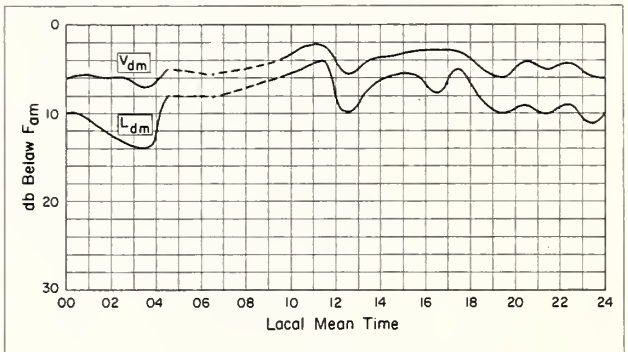
113 kc

BOULDER, COLORADO APRIL 1957



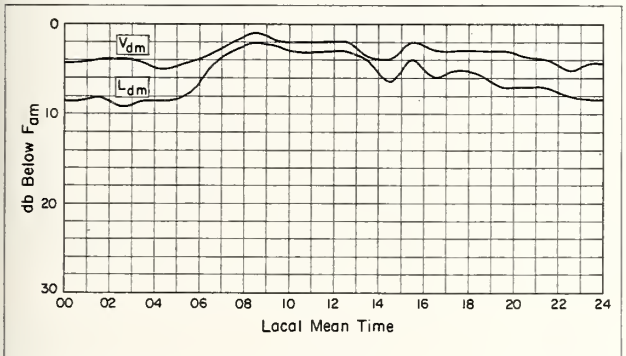
246 kc

BOULDER, COLORADO APRIL 1957



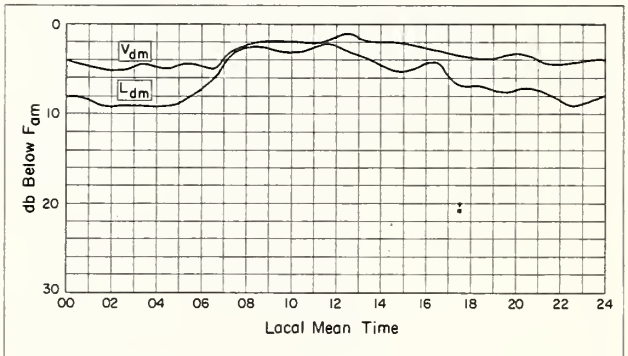
545 kc

BOULDER, COLORADO APRIL 1957



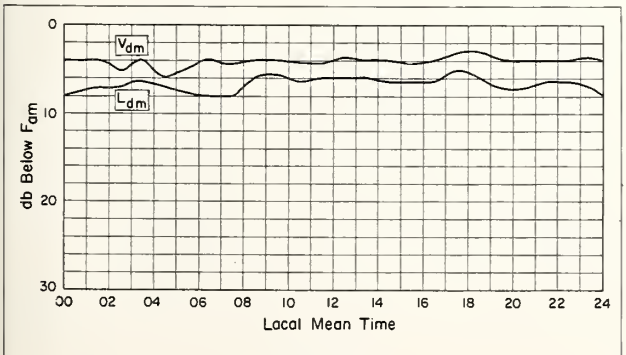
2.5 Mc

BOULDER, COLORADO APRIL 1957



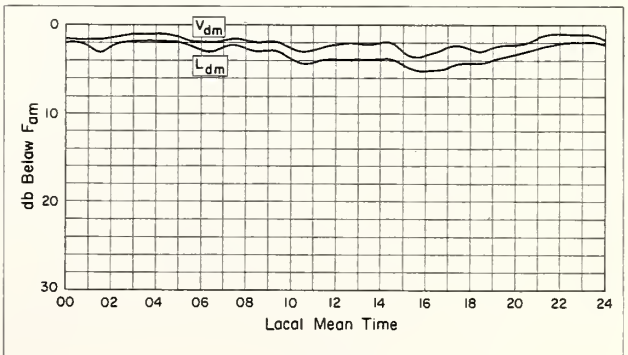
5 Mc

BOULDER, COLORADO APRIL 1957



10 Mc

BOULDER, COLORADO APRIL 1957



20 Mc

BOULDER, COLORADO APRIL 1957

---- Data Missing

Table 1

Washington, D. C. (38.7°N, 77.1°W) May 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		6.9	290				(2.2)	2.60
01		6.6	<300				(2.5)	2.50
02		6.3	300				(2.6)	2.60
03		6.0	290				(2.4)	2.60
04		5.6	290				(2.0)	2.65
05	---	5.6	280		125	1.70		2.80
06	(300)	6.2	250	---	111	2.40	2.5	2.90
07	370	6.7	240	4.8	109	3.00	3.2	2.75
08	425	6.8	220	5.2	105	3.30	3.6	2.75
09	440	7.2	215	5.4	105	3.60	3.9	2.60
10	435	7.3	210	5.5	103	3.80	4.0	2.60
11	430	7.7	210	5.8	105	(3.90)	3.9	2.60
12	430	7.9	210	5.8	106	4.00		2.55
13	445	7.9	215	5.7	106	4.00	4.0	2.50
14	420	8.1	220	5.7	108	3.95		2.55
15	425	8.1	220	5.6	109	3.80		2.60
16	400	8.2	230	5.3	109	3.50	3.7	2.60
17	380	8.2	240	4.8	109	3.10	3.3	2.65
18	(300)	8.4	255		111	2.50	2.8	2.70
19		8.0	270		125	1.80	2.2	2.75
20		7.8	265				(2.4)	2.70
21		7.6	270				(2.9)	2.65
22		7.3	280				(2.8)	2.60
23		7.0	285				(2.8)	2.60

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 2

Point Barrow, Alaska (71.3°N, 156.8°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(5.2)					3.8	(2.70)
01		(6.0)					3.6	----
02		---						----
03		---					2.6	----
04		---						----
05		(4.3)						(2.60)
06		(4.5)			---	----		(2.60)
07		(4.8)		---	---	----		(2.60)
08		(5.2)		---	129	2.60		(2.60)
09		6.0		---	129	----		(2.70)
10		6.4		---	---	----		2.80
11		6.7		---	---	----		2.80
12		7.0		---	---	----		2.70
13		7.2		---	---	----		2.75
14		(7.9)		(4.4)	---	----		2.75
15		(7.9)		---	---	----		2.80
16		(8.6)		---	---	----		2.80
17		(7.8)			<143	2.40		2.90
18		(6.8)			<141	(2.15)		2.70
19		(5.9)			135	(2.10)		(2.90)
20		(4.8)			---	----		----
21		(4.8)			---	----	2.4	(2.70)
22		(4.2)					2.9	(2.60)
23		(4.1)					3.0	(2.60)

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 3

St. Johns, Newfoundland (47.6°N, 52.7°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.6)	325					(2.55)
01		(6.2)	320					(2.60)
02		(6.0)	310					(2.60)
03		(5.3)	300					(2.60)
04		(5.0)	300					(2.60)
05		(4.5)	290					(2.60)
06		(5.2)	270		---	----		(2.90)
07		6.8	245		111	2.40		3.10
08		8.0	230		109	2.90		3.10
09		8.9	225		105	(3.20)		3.00
10	---	9.4	220	---	109	(3.50)		2.85
11	---	10.0	220	---	109	(3.60)		2.80
12	(535)	10.3	220	---	109	(3.70)		2.75
13	---	10.6	220	---	109	3.70		2.75
14	---	10.8	230	---	107	3.60		2.70
15	---	10.8	230	---	109	3.30		2.70
16	---	10.8	235	---	111	3.00		2.75
17	---	11.4	240	---	115	(2.60)		2.80
18		(11.0)	245		---	----		(2.90)
19		(9.6)	240					(2.80)
20		(8.0)	250					(2.65)
21		(7.2)	280					(2.70)
22		(6.8)	310					(2.65)
23		(6.7)	320					(2.55)

Time: 52.5°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 4

White Sands, New Mexico (32.3°N, 106.5°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1	260					2.60
01		6.1	<270					2.60
02		6.1	250				(2.0)	2.60
03		6.0	<260					2.65
04		5.8	250				(2.0)	2.65
05		5.5	<255				(2.1)	2.65
06		5.9	<275		---	----	(1.6)	2.75
07	---	9.1	240	---	111	2.30		3.10
08	---	11.0	230	---	109	3.00	3.0	3.05
09	---	12.3	220	---	107	(3.35)		3.00
10	---	12.7	215	---	105	(3.65)	3.7	2.85
11	---	13.4	210	---	105	3.80	3.9	2.75
12	---	13.6	210	---	107	3.90		2.70
13	---	13.7	225	---	107	(3.90)	4.0	2.65
14	---	13.5	225	---	105	3.85		2.65
15	---	13.3	230		107	3.65	3.8	2.65
16		12.9	240		109	3.30		2.70
17		12.4	240		<111	2.70	2.9	2.75
18		11.7	240		<123	----	2.1	2.85
19		10.2	<220				(2.4)	2.80
20		8.9	230				(2.3)	2.80
21		8.1	<245				(2.5)	2.80
22		7.4	245				(2.2)	2.75
23		6.7	<260				(2.0)	2.70

Time: 105.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 5

Okinawa I. (26.3°N, 127.8°E) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		14.8	255					2.90
01		13.2	250					2.90
02		11.5	245					2.90
03		10.2	230					3.00
04		7.5	220					2.85
05		6.8	240					2.70
06		5.8	265					2.60
07		8.4	250		<135	2.20		2.95
08		11.4	240		111	2.90		3.05
09		13.1	230		109	3.40	3.6	2.90
10		14.0	230		109	3.70	3.9	2.85
11		14.4	220		109	3.85	4.2	2.70
12	(375)	15.5	220		109	(3.95)	4.3	2.65
13	(385)	16.2	220	---	109	(4.00)	4.2	2.60
14	380	17.0	230	---	109	3.95	4.3	2.55
15	365	16.6	230	(7.0)	111	3.80		2.60
16	350	16.5	230		111	3.55	3.6	2.60
17	---	16.4	245		113	3.05	3.3	2.65
18		15.3	260		119	(2.30)	3.0	2.70
19		15.5	270				(3.0)	2.65
20		(16.8)	275				(2.5)	2.65
21		17.4	260					2.65
22		17.4	260					2.80
23		16.3	255					2.90

Time: 135.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 6

Maui, Hawaii (20.8°N, 156.5°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.0	240					3.00
01		8.8	240					3.00
02		7.6	240					2.95
03		6.4	240					2.90
04		5.4	250					2.75
05		5.0	265					2.70
06		5.0	305					2.60
07		8.3	260		125	2.10		3.10
08	---	10.3	240		111	2.95		3.10
09	---	12.0	225		111	3.35		2.80
10	---	13.3	220		109	3.70		2.80
11	---	14.0	215		109	3.90		2.75
12	(375)	14.5	215	---	109	4.00	4.0	2.70
13	380	15.0	215	---	109	4.00	4.0	2.65
14	380	15.5	230	7.1	109	3.90	4.0	2.65
15	370	15.5	235	---	109	3.80		2.65
16	350	15.3	230	---	111	3.50	3.7	2.70
17	---	14.9	240		115	3.00		2.70
18		14.2	250		123	2.15	2.6	2.80
19		13.5	250				2.3	2.85
20		13.8	260				(1.6)	2.90
21		13.0	245					2.90
22		12.4	250					2.90
23		11.0	250					3.00

Time: 150.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 7

Puerto Rico, W. I. (18.5°N, 67.2°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.5	255					2.90
01		9.2	245				(2.4)	2.95
02		8.4	240				(2.9)	3.00
03		7.0	235				(2.2)	2.85
04		6.5	240				(2.2)	2.60
05		5.9	265				(2.0)	2.60
06		6.1	270				(2.3)	2.70
07		8.6	245		<129	(2.20)		3.10
08		11.0	235		109	2.95		3.10
09	---	12.6	230	---	109	3.40		3.00
10	---	13.5	225	---	109	(3.75)		2.90
11	---	13.7	220	---	109	(3.95)	4.1	2.85
12	---	13.7	220	---	109	(4.05)	4.3	2.70
13	---	13.7	230	---	109	(4.10)	4.5	2.70
14	(360)	13.7	225	6.7	109	4.05	4.5	2.65
15	---	13.4	240	---	109	3.90	4.5	2.60
16	---	13.0	(235)	---	109	3.60	4.4	2.60
17		12.6	245		111	(3.10)	3.9	2.65
18		11.9	250		117	(2.20)	3.1	2.70
19		11.4	245				(2.3)	2.75
20		10.6	255				(2.5)	2.75
21		10.3	265				(2.4)	2.70
22		10.2	275				(2.8)	2.75
23		10.3	275				2.6	2.85

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 8

Panama Canal Zone (9.4°N, 79.9°W) March 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		11.0	240				(2.7)	3.05
01		9.7	230				(2.2)	3.10
02		7.3	210				(1.8)	2.95
03		6.2	230				(1.5)	2.75
04		5.5	260				(1.7)	2.70
05		5.0	270				(1.9)	2.70
06		5.3	280				2.2	2.70
07		9.1	250		121	2.40		3.05
08		11.8	240		109	3.10		3.00
09	---	13.0	230		105	3.60		2.85
10	---	13.8	220		107	3.95		2.80
11	---	14.0	215		107	4.10		2.70
12	(370)	14.5	210		108	4.20		2.60
13	385	15.0	210	---	109	4.25		2.55
14	380	15.3	215	---	107	4.10		2.55
15	385	15.3	215	---	107	3.95		2.55
16	370	15.0	235		107	3.60		2.60
17	---	14.7	240		111	3.05	3.3	2.60
18		14.1	250		121	2.30		2.65
19		13.5	255		---	----	(2.2)	2.70
20		(12.3)	260				(1.9)	2.70
21		(11.1)	240				(2.6)	(2.55)
22		11.7	245				(2.4)	2.80
23		11.6	250				(2.4)	2.90

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 9

Adak, Alaska (51.9°N, 176.6°W) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		3.1	320					2.50
01		3.1	330					2.55
02		3.2	325					2.60
03		3.2	<315					2.60
04		3.2	310					2.55
05		3.2	290					2.60
06		3.4	<300					2.70
07		6.0	250		115	----	1.6	3.10
08	---	9.0	230	---	119	2.30		3.20
09	---	10.9	230	---	119	2.70		3.20
10	---	12.1	225		117	3.00		3.10
11	---	12.8	225		115	3.20		3.05
12	---	13.0	230		115	3.30		3.00
13	---	12.6	230		115	3.20		3.00
14		12.0	230		115	2.95		2.95
15		11.8	230		117	(2.65)		3.00
16		11.2	225		123	2.15		3.00
17		10.6	230					3.00
18		8.9	215					3.10
19		6.7	215					3.20
20		4.7	230					3.10
21		3.7	250					2.90
22		3.3	270					2.80
23		3.2	<300					2.60

Time: 180.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 10

St. Johns, Newfoundland (47.6°N, 52.7°W) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		(6.2)	295					(2.65)
01		(5.4)	300					(2.65)
02		(4.6)	<300					(2.65)
03		(5.2)	300					(2.70)
04		(4.6)	270					(2.80)
05		(4.6)	260					(2.75)
06		(4.4)	260		---	----		(2.80)
07		5.4	250		---	----		3.00
08		8.2	235		111	(2.45)		3.20
09	---	10.0	230		119	2.80		3.10
10	---	11.2	230	---	115	3.10		3.05
11	---	12.0	230	---	115	(3.30)		3.00
12	---	12.2	230	---	115	(3.40)		2.95
13	---	12.2	230	---	115	3.35		2.90
14		12.1	230		115	3.20		2.90
15		12.2	230		115	3.00		2.90
16		11.9	240		119	(2.60)		2.90
17		11.5	240		125	----		2.95
18		10.4	230					2.90
19		9.0	230					2.90
20		8.0	240					2.80
21		(7.4)	260					2.80
22		(6.8)	270					(2.70)
23		(6.6)	290					(2.70)

Time: 52.5°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 11

Ft. Monmouth, New Jersey (40.3°N, 74.1°W) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.0	265					2.75
01		5.9	265					2.80
02		5.9	260				(1.4)	2.80
03		5.8	265				(2.3)	2.80
04		(5.8)	260				(2.4)	(2.80)
05		(5.6)	255				(3.7)	(2.80)
06		(5.0)	240					(2.85)
07		6.8	240		111	----		3.15
08		9.8	225		111	2.55		3.20
09	---	11.5	220		109	3.10		3.15
10	---	12.7	220		107	3.40		3.05
11	---	13.0	215		109	3.55		3.00
12	---	13.0	215		109	3.65		2.95
13	---	12.9	215		109	3.65		2.85
14		12.8	220		107	3.50		2.85
15		12.7	225		109	3.20		2.85
16		12.2	230		109	2.80		2.90
17		12.1	230		119	----		2.95
18		11.4	220				(1.9)	3.00
19		9.6	220					2.95
20		8.4	230				(2.3)	2.90
21		7.6	240					2.90
22		7.0	240					2.85
23		6.6	250					2.80

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 12

Panama Canal Zone (9.4°N, 79.9°W) February 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		9.4	240				(3.0)	3.10
01		7.8	230				(2.6)	3.10
02		6.0	220				(2.8)	3.10
03		4.4	230				(2.4)	2.95
04		3.8	255				(2.5)	2.70
05		4.2	290				(3.8)	2.55
06		4.3	295				(2.4)	2.55
07		8.4	260		169	2.20		3.00
08	---	12.0	240		113	3.00		3.00
09	260	13.5	230		110	3.50	4.2	2.90
10	270	14.4	225		109	3.90	4.3	2.85
11	---	14.5	210		107	4.10	4.4	2.80
12	(350)	15.0	215		109	4.20	4.4	2.70
13	365	15.3	220		107	4.15	4.3	2.65
14	360	15.8	220	---	105	4.00	4.4	2.65
15	345	15.0	225	---	105	3.80	4.3	2.65
16	320	14.8	240		105	3.40	3.9	2.70
17	---	14.5	245		109	3.00	3.7	2.70
18		13.3	245		130	2.20	2.6	2.70
19		(12.0)	230				(3.2)	(2.75)
20		10.5	240				(2.9)	2.75
21		10.5	255				(2.8)	2.70
22		10.6	245				(2.9)	2.85
23		9.9	240				(2.8)	2.90

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 13

Resolute Bay, Canada (74.7°N, 94.9°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	240		---	---		---
01		5.3	260		---	---		---
02		5.4	250		---	---		(2.9)
03		5.0	260		---	---		(2.6)
04		5.0	260		---	---		---
05		4.1	260		---	---	<1.3	(2.8)
06		4.4	260		---	---		(2.85)
07		4.2	260		---	---		---
08		4.3	270		---	---	<1.4	---
09		5.0	260		---	1.2		---
10		5.2	250		135	1.4		(2.7)
11		6.0	250	---	135	1.5	1.6	(2.8)
12		6.7	250		130	1.6		(2.8)
13		6.7	260		110	1.5	1.6	(2.9)
14		6.6	250		130	1.5	1.5	(2.9)
15		7.0	240		140	1.4		(2.65)
16		6.4	240		---	1.3		---
17		6.6	250		---	---	<1.1	---
18		6.0	250		---	---	<1.1	---
19		6.0	250		---	---	<1.4	(2.9)
20		5.7	250		---	---	<1.2	(2.6)
21		5.4	250		---	---		---
22		5.1	260		---	---		---
23		5.4	260					(2.9)

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 14

Tromso, Norway (69.7°N, 19.0°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---	---		125	2.35	3.3	
01		---	---		120	(2.05)	3.2	----
02		(5.3)	---		---	1.50	>3.2	----
03		(6.0)	(290)		120	2.05	3.2	----
04		(5.6)	(260)		115	2.10	2.9	(2.55)
05		(5.6)	260		120	(1.80)	2.7	(2.65)
06		5.2	255		120	1.50		(2.75)
07		4.7	265		---	1.35	2.1	2.70
08		4.8	255		---	1.30	1.6	2.70
09		6.2	255		---	1.20		2.80
10		8.8	245		120	1.55		2.90
11		11.0	245		115	1.70		2.90
12		12.0	245		---	1.75		3.00
13		11.3	245		115	1.70		3.05
14		10.7	240		115	1.75		2.95
15		9.0	230		120	1.60	1.8	3.00
16		(5.6)	240		145	1.60	1.8	(3.00)
17		(5.0)	240		---	----	2.4	(2.90)
18		(3.5)	(260)		115	(1.65)	2.6	(3.00)
19		3.3	---		120	1.70	2.6	(2.90)
20		(3.8)	---		115	2.45	2.6	(2.75)
21		(3.7)	---		110	2.50	2.8	----
22		(4.8)	---		115	2.30	3.0	----
23		(4.7)	---		---	----	3.0	----

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 15

Kiruna, Sweden (67.8°N, 20.3°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		5.1	340				(3.2)	2.4
01		6.0	345				(2.5)	2.5
02		6.5	315				(2.3)	2.55
03		6.3	310				(2.4)	2.6
04		6.0	295				(2.3)	2.6
05		6.0	265				(2.3)	2.8
06		5.0	270				1.9	2.8
07		4.0	260					2.8
08		4.3	260		---	E		2.8
09		6.6	250		---	1.3	1.8	2.9
10		9.0	240		---	1.7	(2.0)	2.95
11		10.9	240		---	2.0	(2.3)	2.9
12	---	11.5	235		---	2.0		2.9
13		11.5	230		---	1.9		3.0
14		10.2	230		---	1.8		3.0
15		9.0	230		---	1.2		3.0
16		7.2	230		---	E	1.3	3.0
17		5.4	245		---	---	(2.3)	2.75
18		4.3	260				2.3	2.8
19		4.0	290				(2.4)	2.8
20		4.2	320				(3.3)	2.8
21		(5.0)	310				(3.2)	(2.65)
22		5.4	350				(3.2)	(2.5)
23		(6.0)	345				(3.1)	2.5

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 16

Lulea, Sweden (65.6°N, 22.1°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	(300)	---						
01	300	(2.6)					2.5	
02	300	(3.3)					2.0	
03	300	(2.7)						
04	290	(3.0)						
05	250	(3.1)						
06	250	(3.6)						
07	260	(2.8)						
08	250	4.7						
09	240	7.0	---	---	---	1.6		
10	240	>7.9	---	---	140	2.0		
11	235	>8.0	---	---	115	2.2		---
12	225	>8.0			110	2.5		
13	225	D			120	2.3		---
14	220	>8.0			---	1.8		
15	215	>8.0			---	1.7		
16	210	>7.5						
17	210	(7.0)						---
18	225	---						
19	250	(4.0)						
20	275	(3.5)						
21	(270)	---						
22	(300)	---					2.6	
23	(300)	---					2.4	

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 6 minutes, automatic operation.

Table 17

Baker Lake, Canada (64.3°N, 96.0°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.2	260				5.2	(2.9)
01		5.2	260		---	---	4.9	---
02		5.0	260		---	---	5.0	---
03		5.0	270		---	---	5.0	
04		4.8	270		---	1.4	4.0	---
05		4.4	290		---	1.4	4.3	---
06		4.3	270		115	1.5	3.6	
07		4.3	280		115	2.0	4.0	
08		4.6	290		110	2.0	4.0	---
09		5.2	280		110	2.1	4.0	---
10		6.0	270		110	2.4	4.0	---
11		7.0	260		110	2.5	3.4	(2.9)
12		8.0	250		120	2.6		2.9
13		10.4	250		120	2.6		2.9
14		12.1	250		120	2.4		2.85
15		9.0	250		110	2.1		2.9
16		7.2	250		130	1.9	2.3	(2.85)
17		6.2	270		120	2.0	2.9	(2.7)
18		6.0	280		120	2.0	<3.5	---
19		5.8	280		120	1.9	4.8	
20		6.0	260		120	2.0	4.1	---
21		5.2	250		---	1.8	4.4	---
22		5.2	270		---	---	6.0	---
23		5.2	260		---	---	5.2	(2.7)

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 18

Reykjavik, Iceland (64.1°N, 21.8°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		---					3.6	----
01		---					3.2	----
02		---					3.5	----
03		---					3.4	----
04		(5.0)					2.8	(2.60)
05		(5.4)						(2.70)
06		(5.0)						(2.80)
07		(4.7)						(2.75)
08		(4.6)			---	---		2.75
09		5.8			---	---		2.90
10		8.0			---	---		2.95
11		10.0			---	---		3.00
12		11.4			---	---		3.00
13		12.0			---	---		3.05
14		11.9			---	---		3.00
15		(10.5)			---	---		3.00
16		(10.2)			---	---		(3.00)
17		(8.7)						3.00
18		(4.6)						(2.90)
19		3.9					2.8	2.60
20		(4.5)					3.0	(2.65)
21		(3.6)					2.9	(2.70)
22		(5.6)					3.0	----
23		---					3.2	----

Time: 15.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 16.2 seconds.

Table 19

Nurmijarvi, Finland (60.5°N, 24.6°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(3.0)						(3.1)
01		(3.0)						(3.1)
02		(3.0)						(3.1)
03		(2.9)						(3.1)
04		(2.8)						(3.1)
05		(2.8)						(3.15)
06		(2.6)						(3.4)
07		(2.8)						3.3
08		(4.2)						(3.2)
09		(7.0)				---		(3.4)
10		10.0				2.2		3.5
11		11.1				---		3.4
12		12.5				---		3.5
13		12.6				---		3.4
14		13.0				---		3.5
15		12.5				---		3.4
16		11.3						3.4
17		9.5						3.4
18		7.7						3.4
19		5.6						3.5
20		(4.4)						(3.3)
21		(3.8)						(3.2)
22		(3.5)						3.1
23		(3.4)						(3.1)

Time: 30.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 1 minute (Jan. 1 through 15); in 2 minutes (Jan. 16 through 31).

Table 20

Upsala, Sweden (59.8°N, 17.6°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		3.3	330					2.5
01		3.1	330				2.1	2.5
02		3.0	325				2.7	2.5
03		3.0	310				3.0	2.5
04		3.1	300					2.6
05		3.2	285				2.4	2.6
06		3.0	260					2.7
07		3.3	260		---	E		2.6
08		5.6	240		---	E	1.7	2.7
09		8.7	230		130	1.85	3.1	2.9
10	---	11.0	225	---	120	2.25	2.9	3.0
11	---	12.3	225	(4.1)	120	2.50	3.0	2.9
12	---	12.8	225	---	115	2.55	2.9	2.9
13	---	13.3	230	---	115	2.50	3.1	2.9
14		13.0	230		120	2.30	3.0	2.9
15		12.0	225		135	1.85	2.7	2.9
16		10.2	215		---	E	2.4	3.0
17		8.8	215		---	E	2.2	2.95
18		6.6	215					2.9
19		5.2	240					2.8
20		4.2	255					2.7
21		3.8	290					2.6
22		3.7	295					2.6
23		3.4	325					2.5

Time: 15.0°E.
Sweep: 1.4 Mc to 17.0 Mc in 6 minutes, automatic operation.

Table 21

Churchill, Canada (58.8°N, 94.2°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.5	300		125	2.6	6.0	
01		5.0	320	---	125	2.4	5.5	---
02		4.6	320		130	2.2	5.0	
03		5.1	310		120	2.3	4.8	---
04		4.8	310		130	2.2	5.0	
05		4.6	320		120	2.7	4.4	---
06		5.2	310		120	2.9	4.5	---
07		5.2	320		110	2.9	4.5	
08		5.3	300		110	2.6	4.5	
09		6.8	280		110	2.8		(3.0)
10		9.0	260		110	3.0		3.0
11		10.6	250		115	2.9		3.0
12		11.9	250	---	120	2.9		3.0
13		12.6	250		120	2.9		2.9
14		13.0	240		125	2.8		2.9
15		13.1	240		130	2.6		2.9
16		12.6	240		130	2.0		2.9
17		11.2	260		130	1.8	2.2	(2.9)
18		7.8	270		130	2.0	2.6	(3.0)
19		6.4	280		120	2.1	2.9	---
20		5.8	300		120	2.1	2.6	---
21		5.8	300		120	2.4	3.5	
22		5.2	310		130	2.2	4.2	---
23		(5.0)	310		130	2.5	6.2	

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 22

De Bilt, Holland (52.1°N, 5.2°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.2						2.6
01	300	4.1						2.6
02	305	4.0						2.5
03	300	3.6						2.7
04	<300	3.5						2.6
05	280	3.4						2.7
06	<280	3.3						2.8
07	240	4.6						2.8
08	220	7.9			---	2.1		3.2
09	210	10.7			120	2.6		3.2
10	215	12.4			120	2.9		3.1
11	220	12.9	---	---	115	3.0	3.3	3.1
12	220	12.8	---	---	120	3.0	3.6	3.0
13	220	13.0	---	---	120	3.0		3.0
14	220	12.5	---	---	120	2.8		3.0
15	210	11.9	---	---	120	2.5		3.0
16	210	10.8						3.1
17	210	9.2						3.0
18	220	7.5						3.0
19	220	5.8						3.0
20	<260	5.0						2.8
21	285	4.6						2.7
22	300	4.4						2.6
23	310	4.2						2.6

Time: 0.0°.
Sweep: 1.4 Mc to 16.0 Mc in 40 seconds.

Table 23

Lindau/Harz, Germany (51.6°N, 10.1°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	4.05					2.7	2.55
01	305	4.10					2.7	2.55
02	300	4.10					3.0	2.55
03	300	3.70					2.6	2.60
04	280	3.40			---	E	2.6	2.65
05	280	3.45			---	E	2.6	2.60
06	260	3.25			---	E	2.4	2.70
07	260	3.50			---	E	2.6	2.75
08	235	6.10			---	E	3.1	2.85
09	225	9.20			145	2.30	3.9	3.05
10	230	12.00			110	2.70	4.0	3.05
11	230	13.00			110	2.90	4.2	3.00
12	230	12.80			115	3.10	4.2	3.00
13	230	12.70			115	3.10	4.0	2.90
14	230	12.70			115	2.90	4.0	2.85
15	230	12.50			115	2.60	3.9	2.95
16	225	11.50			125	2.05	3.5	2.95
17	215	10.10			---	E	3.4	2.90
18	220	8.55			---	E	3.4	2.90
19	225	7.10			---	E	3.0	2.95
20	235	5.65					3.0	2.85
21	255	4.65					2.4	2.70
22	280	4.40					2.6	2.60
23	310	4.10					2.7	2.55

Time: 15.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 4 minutes.

Table 24

Winnipeg, Canada (49.9°N, 97.4°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		4.7	280				<1.5	2.8
01		4.5	290				<1.5	2.8
02		4.3	290				<1.5	2.8
03		4.4	300				3.0	2.8
04		4.3	300				2.6	2.75
05		4.2	300				<1.8	2.8
06		4.0	290				<1.5	2.8
07		3.9	290				<1.5	2.9
08		5.2	270		---	1.6		2.9
09		8.0	240		120	2.3		3.0
10		10.3	240		110	2.8		3.0
11		12.1	240		110	3.0		3.0
12		12.6	240		115	3.1		3.0
13		13.0	230		115	3.1		3.0
14		13.0	230		110	3.0		2.9
15		13.2	240		110	2.8		2.9
16		12.9	230		120	2.5		2.9
17		12.0	230		---	1.9		2.9
18		11.0	230				<1.6	2.9
19		9.2	230				<1.7	3.0
20		7.6	230				<1.5	2.95
21		6.0	240				<1.5	2.9
22		5.2	260				<1.5	2.9
23		5.0	270				<1.5	2.9

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 25

Schwarzenburg, Switzerland (46.8°N, 7.3°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	4.5						3.0
01	290	4.4						2.9
02	300	4.4						3.0
03	300	4.3						3.0
04	270	4.2						3.05
05	270	3.8						3.05
06	280	3.6						3.0
07	250	3.8						3.1
08	210	7.0			140	1.9		3.4
09	200	9.8			100	2.4		3.5
10	200	11.4			100	2.8		3.4
11	210	13.2			100	3.1		3.4
12	210	13.3			100	3.2		3.4
13	205	13.0			100	3.2		3.3
14	200	12.4			100	3.1		3.3
15	210	12.2			100	2.8		(3.2)
16	210	11.5			100	2.5		3.4
17	200	9.8			---	---	2.3	3.5
18	205	8.3						3.3
19	210	7.6						3.35
20	210	6.0						3.4
21	230	4.6						3.2
22	300	4.4						3.0
23	300	4.4						2.9

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 26

Ottawa, Canada (45.4°N, 75.9°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		5.5	280				<1.6	2.7
01		5.3	290				<1.5	2.65
02		5.0	290				<1.5	2.7
03		4.9	280				<1.6	2.8
04		4.7	270				<1.5	2.8
05		4.6	270				<1.5	2.8
06		4.4	270				<1.5	2.8
07		4.6	250				<1.6	2.8
08		7.9	240		130	2.1		3.0
09		10.6	240		110	2.8		3.1
10		12.0	230		110	3.1		3.0
11		13.1	230		110	3.3		2.9
12		13.3	230		110	3.3		2.9
13		13.5	230		110	3.3		2.8
14		13.0	240		110	3.1		2.8
15		13.0	240		115	2.9		2.8
16		12.8	230		120	2.4		2.9
17		11.9	230		---	1.8		2.85
18		10.6	230				<1.6	(2.9)
19		9.2	230				<1.6	2.9
20		8.0	230				<1.6	3.0
21		7.0	250				<1.5	2.9
22		6.0	260				<1.5	2.85
23		5.8	260				<1.5	2.8

Time: 75.0°W.
Sweep: 1.0 Mc to 20.0 Mc in 15 seconds.

Table 27

Formosa, China (25.0°N, 121.5°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	240	9.7						2.8
01	240	8.0						2.8
02	260	6.6						2.8
03	260	6.8						2.8
04	260	6.9						2.8
05	260	6.1					2.3	2.7
06	270	7.8					(2.5)	2.8
07	270	8.9			---	---		2.9
08	260	12.1			130	2.9		3.0
09	250	13.8	240	---	120	3.4		3.0
10	(250)	13.8	240	---	120	3.7		2.9
11	---	13.6	240	---	120	3.9	4.0	2.7
12	---	13.6	230	---	120	4.0	4.2	2.6
13	---	14.0	230	---	120	3.8	4.2	2.6
14	---	14.7	240	---	---	3.8	3.9	2.6
15	---	14.8	240	---	---	---	3.6	2.65
16	(270)	15.4	240	---	120	3.1	3.6	2.7
17	260	15.0			---	---	3.6	2.9
18	240	14.2					(3.2)	2.8
19	240	13.8					(2.9)	2.9
20	260	15.7					(2.6)	2.8
21	240	14.9						2.9
22	240	13.9						2.9
23	240	10.7						2.8

Time: 120.0°E.
Sweep: 1.1 Mc to 19.5 Mc in 15 minutes, manual operation.

Table 28

Baguio, P. I. (16.4°N, 120.6°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		10.8	230				(1.8)	2.90
01		9.8	225				(1.4)	3.00
02		9.2	230					3.00
03		7.4	230					2.95
04		6.4	230					2.90
05		5.6	240					2.95
06		5.2	250		---	----		2.90
07		8.6	270		131	2.25		2.90
08		12.0	250		115	(3.05)		2.90
09	---	14.1	240		111	(3.50)		2.85
10	---	14.0	230		111	3.85		2.65
11	---	13.7	225		111	4.00		2.45
12	---	13.5	220	---	111	4.00	4.1	2.30
13	(485)	13.6	215	---	111	(4.00)		2.25
14	(455)	13.6	220	---	111	3.85		2.20
15	---	13.2	230		111	3.60		2.30
16		13.2	245		113	(3.10)		2.30
17		13.0	265		119	2.45	(3.4)	2.35
18		12.7	290				(3.5)	2.40
19		12.1	325				(2.5)	2.35
20		11.9	320				(1.7)	2.40
21		11.5	285				(2.8)	2.55
22		11.6	250				(3.4)	2.70
23		11.2	235				(1.7)	2.85

Time: 120.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 29

Leopoldville, Belgian Congo (4.4°S, 15.2°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	10.5						2.48
01	260	10.9						2.54
02	240	9.2						2.63
03	240	8.4						2.59
04	225	6.8						2.70
05	255	6.8			130	<2.0	2.3	2.69
06	260	8.6	245	---	110	2.9	3.1	2.68
07	280	9.4	230	---	105	3.5		2.50
08	305	10.0	225	---	105	3.9		2.29
09	390	10.5	220	---	105	4.1		2.14
10	490	11.0	220	---	105	4.2		2.01
11	490	11.8	230	---	105	4.2		2.06
12	465	12.7	230	---	105	4.2		2.10
13	450	12.6	220	---	105	4.1		2.15
14	465	12.6	225	---	105	4.0		2.10
15	445	13.0	240	---	110	3.7		2.14
16	405	13.0	255	---	110	3.0	3.6	2.18
17	360	11.5	290	---	---	---	3.1	2.27
18	345	>11.2					2.6	2.21
19	360	(12.5)						<2.30
20	290	14.0						(2.39)
21	240	14.3						2.62
22	225	13.0						2.77
23	240	10.7						2.42

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 30

Elisabethville, Belgian Congo (11.6°S, 27.5°E) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	8.4						2.36
01	270	7.9						2.41
02	265	7.2						2.41
03	265	6.5					1.7	2.39
04	280	6.8	---	---	110	1.7	2.4	2.51
05	255	8.5	250	---	105	2.9	3.0	2.63
06	(265)	9.0	240	---	105	3.5		2.54
07	(340)	9.9	230	---	105	3.9		2.38
08	375	10.4	225	---	105	4.0		2.18
09	430	10.7	220	---	105	4.1		2.11
10	445	11.2	220	---	105	4.3		2.10
11	435	11.5	225	---	105	4.2		2.14
12	420	11.6	225	---	105	4.1		2.17
13	410	11.2	230	5.4	105	4.0	4.0	2.15
14	410	11.0	235	---	105	3.7	4.2	2.13
15	385	10.8	240	---	105	3.3	3.9	2.17
16	335	10.6	270	---	115	2.6	3.3	2.24
17	300	10.4					2.7	2.27
18	315	10.4					2.5	2.26
19	300	11.0					2.4	2.31
20	275	11.1						2.47
21	260	10.5						2.47
22	255	9.3						2.37
23	260	8.9						2.36

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 31

Rarotonga I. (21.2°S, 159.8°W) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	fEs	(M3000)F2
00		(9.8)	300					(2.50)
01		(9.2)	300					(2.50)
02		(9.0)	<340				2.0	(2.50)
03		(9.4)	<350				2.3	(2.40)
04		(8.8)	330				2.3	(2.50)
05		(8.7)	310				2.6	(2.60)
06		9.0	290		---	---	2.7	2.60
07	---	9.6	250	---	110	2.9	3.6	3.00
08	---	10.2	250	---	110	3.5	4.8	2.70
09	400	11.1	250	7.1	---	---	4.9	2.50
10	400	12.2	240	7.1	---	---	5.1	2.50
11	410	13.2	230	7.0	---	---	4.6	2.50
12	420	13.8	240	7.2	105	(4.5)		2.50
13	420	14.1	250	7.0	104	(4.5)	4.6	2.50
14	410	14.3	235	6.7	---	4.4	5.0	2.50
15	400	13.8	235	6.5	103	(4.1)	4.5	2.50
16	400	13.2	250	6.5	115	3.7	4.9	2.50
17	400	12.1	<260	6.3	116	3.3	5.0	2.50
18	---	(11.2)	280	---	---	---	4.5	(2.60)
19		(10.3)	320				3.4	(2.50)
20		(9.5)	<350				3.4	(2.40)
21		(9.7)	<360				2.0	(2.40)
22		(9.7)	<350				2.0	(2.40)
23		(9.8)	320				1.8	(2.45)

Time: 157.5°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 32

Johannesburg, Union of S. Africa (26.2°S, 28.1°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	280				1.6	2.6
01		6.6	270				2.4	2.6
02		6.0	260				2.1	2.6
03		5.6	280				1.8	2.6
04		5.4	280					2.5
05		5.3	290					2.6
06	---	7.0	260	---		2.3	2.7	2.9
07	(260)	8.7	240	---		3.0	3.4	2.7
08	320	9.8	240	4.8		3.6		2.6
09	380	10.3	220	5.8		3.9		2.5
10	400	10.7	210	5.9		4.1		2.5
11	420	11.0	210	6.0		---	4.5	2.4
12	430	11.2	220	6.0		---		2.4
13	430	11.1	210	6.1		---		2.4
14	420	10.9	220	6.1		---	4.6	2.4
15	420	10.6	220	6.0		---	4.2	2.4
16	400	10.2	220	5.8		3.8	4.1	2.5
17	370	9.5	240	5.2		3.5	3.8	2.5
18	---	9.2	250	---		2.8	3.4	2.6
19		9.2	280			---	2.4	2.6
20		9.0	270				2.2	2.6
21		8.6	270				1.8	2.7
22		7.9	270					2.6
23		7.4	290					2.6

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 33

Watheroo, W. Australia (30.3°S, 115.9°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		7.0	290				3.0	2.60
01		6.7	280				2.8	2.60
02		6.5	300				(2.8)	2.50
03		6.0	300				1.4	2.50
04		5.7	300				1.4	2.55
05	---	5.7	300	---	---	1.50	1.7	2.65
06	(360)	6.2	270	3.5	110	2.20	2.7	2.80
07	(440)	7.1	250	4.5	100	3.00	3.3	2.70
08	460	8.0	230	5.1	100	3.50	4.2	2.65
09	440	8.4	(220)	5.5	100	3.80	5.0	2.55
10	450	9.0	(210)	6.0	100	4.00	5.6	2.50
11	430	9.2	(240)	6.0	100	4.10	5.3	2.50
12	450	9.0	(230)	6.1	100	4.20	4.8	2.50
13	440	9.1	(240)	6.1	100	4.20	5.1	2.50
14	450	9.2	240	6.2	100	4.20	5.1	2.50
15	430	9.0	250	6.0	100	4.10	4.8	2.50
16	420	8.9	240	5.7	100	3.85	4.3	2.55
17	430	8.6	240	5.5	105	3.50	4.2	2.55
18	---	8.4	260	---	105	2.90	3.5	2.60
19		(8.5)	280		115	2.00	2.8	(2.65)
20		8.2	270				(2.8)	(2.55)
21		(8.0)	280				(2.2)	(2.55)
22		7.3	300				(3.0)	(2.55)
23		7.2	300				2.6	2.55

Time: 120.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 45 seconds.

Table 34

Capetown, Union of S. Africa (34.2°S, 18.3°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		6.1	290				2.2	2.6
01		5.8	<300				2.1	2.5
02		5.6	280				2.1	2.5
03		5.2	280				2.0	2.5
04		4.9	<310				2.0	2.5
05		4.8	<300					2.5
06		6.0	280			2.1	2.4	2.7
07	---	7.7	260	---		2.7	3.0	2.8
08	(390)	9.0	250	---		3.3		2.6
09	380	10.0	240	5.6		3.7	3.8	2.4
10	400	10.6	230	6.1		---	4.4	2.4
11	420	10.9	---	6.2		---	4.6	2.4
12	440	10.7	---	6.1		---	4.6	2.4
13	440	10.7	---	6.2		---		2.4
14	450	10.5	---	6.1		---	4.6	2.4
15	450	10.1	240	6.0		---		2.4
16	430	9.9	230	5.9		---		2.5
17	410	9.3	250	5.7		3.6	3.6	2.5
18	400	9.0	250	5.0		3.3	3.4	2.5
19	---	8.7	270			2.5	3.1	2.6
20		8.5	280			---	2.6	2.6
21		8.2	270				2.1	2.65
22		7.4	260				2.0	2.6
23		6.6	270				1.8	2.6

Time: 30.0°E.
Sweep: 1.0 Mc to 15.0 Mc in 7 seconds.

Table 35

Buenos Aires, Argentina (34.5°S, 58.5°W) January 1957

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	10.8						2.5
01	350	10.4						2.6
02	320	10.0						2.6
03	320	9.3						2.5
04	360	9.0						2.5
05	300	9.3						2.5
06	270	9.6			---	---	4.5	2.8
07	280	9.9	250	---	---	---	5.3	2.7
08	400	10.3	250	---	---	---	5.4	2.6
09	410	10.9	240	(7.4)				2.4
10	450	11.6	230	(7.5)				2.4
11	430	11.5	250	(7.6)				2.6
12	410	11.5	250	7.6				2.7
13	420	11.8	240	7.4				2.6
14	410	11.5	240	7.0				2.7
15	410	11.5	250	7.0				2.7
16	400	11.4	260	6.8			5.8	2.75
17	380	11.0	270	(6.7)			5.0	2.8
18	350	10.8	280	---			5.6	2.6
19	330	10.7	---	---			5.0	2.6
20	400	10.6					4.5	2.5
21	410	10.2						2.4
22	400	10.2						2.5
23	400	10.6						2.5

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 36

Christchurch, New Zealand (43.6°S, 172.8°E) January 1957

Time	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000)F2
00		8.1	<340				<2.4	2.5
01		7.3	320				<2.2	2.5
02		6.9	340				<1.9	2.4
03		6.6	<330				<2.0	2.3
04		6.2	300					2.5
05	---	6.4	280	---	---	---		2.6
06	---	6.9	250	---	---	(2.7)	3.4	2.7
07	(400)	7.5	250	4.8	---	3.2	3.9	2.7
08	(440)	8.0	250	5.4	---	3.4	4.2	2.6
09	(450)	8.5	(240)	6.0	---	3.9	5.0	2.7
10	(400)	9.0	---	---	---	---	(6.0)	2.65
11	---	8.8	---	---	---	---	(6.5)	(2.5)
12	(470)	8.8	(250)	---	---	---	(5.0)	2.5
13	(470)	8.6	---	---	---	---		2.5
14	470	8.4	(250)	6.0	---	---	(5.5)	2.4
15	470	8.2	(250)	6.0	---	---	(5.0)	2.5
16	430	8.2	250	5.5	---	3.9	4.6	2.5
17	(450)	8.3	250	5.3	---	3.4	3.9	2.5
18	---	8.1	250	---	---	(3.0)	4.0	2.6
19		8.1	300		---	---	4.3	2.65
20		8.2	300		---	---	3.4	2.5
21		8.5	300				<2.7	2.5
22		8.5	330				<2.5	2.4
23		8.2	340				<2.5	2.5

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 37

Resolute Bay, Canada (74.7°N, 94.9°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.3			---	---		---
01		5.4			---	1.5		---
02		5.0			---	1.5		(2.8)
03		5.0			---	1.4		---
04		5.0			---	---		---
05		4.0			---	---		---
06		4.6			---	---		(2.9)
07		4.7			---	---		---
08		5.0			---	1.3		(2.6)
09		5.1			---	---		---
10		5.9			---	1.4	<1.6	(2.9)
11		6.2			130	1.3		(2.9)
12		6.7			170	1.4	1.4	(2.9)
13		7.6			---	1.3		(2.8)
14		7.0			---	1.4		---
15		6.3			---	1.2		---
16		6.4			---	---	<1.1	(2.75)
17		6.2			---	---		(2.9)
18		6.0			---	---		---
19		6.1			---	---		---
20		6.0			---	---		---
21		5.6			---	---		(2.9)
22		5.4			---	---		---
23		5.7			---	---		---

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 38

Kiruna, Sweden (67.8°N, 20.3°E) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	350	6.0					3.6	2.6
01	350	6.0					3.6	2.6
02	340	6.0					3.2	2.6
03	320	6.2					3.2	2.7
04	300	6.0					3.0	2.7
05	275	6.0					3.0	2.7
06	260	5.2					<2.4	2.8
07	260	4.5					<1.6	2.8
08	265	5.0			---	---	<1.3	2.8
09	260	6.4			---	E	3.2	2.8
10	250	8.8			---	1.6	3.3	2.95
11	245	10.8			---	1.8	3.2	3.0
12	240	12.0			---	1.9	3.2	3.0
13	235	12.0			---	1.6	<2.9	3.0
14	225	11.2			---	1.2	1.8	3.0
15	230	9.2			---	E	<2.0	3.0
16	240	6.5					<2.6	2.95
17	255	5.2					<2.4	3.0
18	265	5.0					3.0	3.0
19	280	4.6					3.8	2.75
20	295	4.6					3.0	2.7
21	310	(5.0)					3.7	2.65
22	340	(5.6)					4.0	(2.7)
23	350	6.0					4.0	2.65

Time: 15.0°E.
Sweep: 0.8 Mc to 14.0 Mc in 30 seconds.

Table 39

Baker Lake, Canada (64.3°N, 96.0°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.2			---	---	5.0	---
01		5.3			---	---	4.0	---
02		5.1			---	1.5	3.4	---
03		4.6			---	---	4.2	
04		4.5			---	---	4.5	---
05		4.7			---	(1.4)	3.3	---
06		4.5			130	2.0	3.3	---
07		4.4			120	2.0	3.3	---
08		5.0			115	2.0	4.0	---
09		5.4			115	2.1	4.0	---
10		6.4			110	2.2	2.5	---
11		8.0			110	2.4		(2.8)
12		9.0			105	2.4		2.9
13		11.4			110	2.3		2.85
14		12.0			110	2.2		2.9
15		7.4			115	2.0	2.0	2.8
16		7.0			120	1.8	2.3	(2.8)
17		6.4			125	2.0	3.5	---
18		5.2			120	2.0	4.0	(2.9)
19		5.2			120	1.6	5.0	---
20		6.0			120	1.9	5.7	---
21		5.4			---	(1.5)	5.4	---
22		5.2			---	---	6.2	---
23		5.2					5.2	(2.8)

Time: 90.0°W.
Sweep: 1.0 Mc to 16.0 Mc in 16 seconds.

Table 40

Oslo, Norway (60.0°N, 11.1°E) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	335	3.00						2.40
01	330	2.85						2.50
02	325	2.85					1.2	2.40
03	310	3.05						2.40
04	300	3.05						2.55
05	270	3.00					1.1	2.60
06	250	3.00						2.70
07	245	2.90						2.70
08	250	4.20			---	----		2.60
09	245	7.60			---	1.80		2.90
10	240	10.90			---	2.20	2.4	3.00
11	235	12.65			---	2.40	2.9	3.10
12	230	13.70	---	---	---	2.50	2.7	3.10
13	230	13.20	---	---	---	2.40		3.05
14	230	>13.80			---	2.25		3.10
15	220	13.20			---	1.95		3.10
16	220	11.90					1.4	3.10
17	220	10.10						3.10
18	220	7.85						3.10
19	225	5.85						2.85
20	250	4.35						2.80
21	280	3.60						2.65
22	280	3.40						2.55
23	320	3.15						2.40

Time: 15.0°E.
Sweep: 0.7 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 41

Churchill, Canada (58.8°N, 94.2°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		(4.9)			130	(2.0)	6.0	---
01		5.2			130	2.0	6.0	---
02		4.9			140	1.9	5.0	
03		5.0			130	2.0	4.6	
04		5.0			125	2.0	4.5	
05		4.8			120	2.8	4.0	---
06		5.0			120	2.8	4.8	---
07		(5.0)			110	(2.7)	4.7	---
08		5.2			120	2.6	4.6	---
09		7.2			110	2.6		3.0
10		9.4			110	2.8		3.05
11		11.1			120	2.8		3.0
12		13.0			120	2.8		3.0
13		13.6			120	2.8		2.9
14		14.2			130	2.5		2.9
15		13.5			130	2.1		2.9
16		13.0			130	1.8		2.9
17		10.1			130	1.8	2.4	(2.9)
18		6.4			130	1.8	2.9	(3.0)
19		5.6			120	(2.1)	3.0	---
20		(5.6)			120	2.2	3.0	---
21		(5.1)			120	2.5	4.2	---
22		(5.3)			130	2.2	4.5	
23		(5.0)			125	2.0	7.0	

Time: 90.0°W.
Sweep: 1.0 Mc to 17.0 Mc in 16 seconds.

Table 42

Winnipeg, Canada (49.9°N, 97.4°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		4.4					<1.5	(2.9)
01		4.4					<1.5	2.7
02		4.5					<1.5	2.6
03		4.5					<1.6	2.7
04		4.6					<1.5	2.7
05		4.6					<1.5	2.7
06		4.2					<1.5	2.7
07		4.2						2.8
08		5.5			---	1.6		2.8
09		8.4			120	2.2		3.0
10		11.0			120	2.7		3.0
11		13.0			120	3.0		2.9
12		13.4			120	3.0		2.9
13		13.8			120	3.0		2.9
14		13.8			115	2.9		2.9
15		13.4			120	2.7		2.9
16		13.2			130	2.1		2.9
17		12.4						2.85
18		11.0					<1.6	2.8
19		9.2					<1.5	2.9
20		7.5					<1.5	2.9
21		6.3					<1.5	2.9
22		5.3					<1.5	2.9
23		4.9					<1.5	2.8

Time: 90.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 15 seconds.

Table 43

Ottawa, Canada (45.4°N, 75.9°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00		5.7					<1.5	2.7
01		5.2					<1.5	2.6
02		5.3					<1.5	2.65
03		5.2					<1.5	2.7
04		5.0					<1.5	2.7
05		5.0					<1.5	2.7
06		4.7					<1.5	2.8
07		5.1			---	---	<1.6	2.8
08		8.3			120	2.2		3.0
09		11.1			110	2.8		3.05
10		13.0			110	3.1		3.0
11		14.0			110	3.2		(2.9)
12		14.1			110	3.3		---
13		13.9			110	3.2		(2.9)
14		13.8			110	3.0		(2.9)
15		13.5			115	2.8		(2.9)
16		13.0			130	2.1		(2.95)
17		12.0			---	---	<1.6	2.9
18		10.8					<1.5	2.95
19		9.2					<1.5	2.9
20		7.9					<1.5	2.9
21		6.9					<1.5	2.8
22		6.1					<1.5	2.8
23		5.7					<1.5	2.75

Time: 75.0°W.
Sweep: 1.0 Mc to 20.0 Mc in 15 seconds.

Table 44

Leopoldville, Belgian Congo (4.4°S, 15.2°E) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	265	12.4						2.48
01	265	11.4						2.50
02	250	9.2						2.62
03	235	8.4						2.61
04	230	6.7						2.71
05	260	7.9			125	2.2	2.7	2.74
06	245	9.0	240	---	110	3.0		2.64
07	250	9.4	230	---	105	3.6		2.45
08	---	10.2	225	---	105	4.0		2.17
09	---	11.0	220	---	105	4.1		2.03
10	(500)	11.8	225	---	105	4.2		<2.01
11	490	12.5	220	---	105	4.2		2.08
12	470	13.1	230	---	105	4.2		2.11
13	465	13.6	235	---	105	4.0	4.4	2.11
14	460	13.5	230	---	105	3.9	4.2	2.12
15	440	13.8	245	---	105	3.5	4.0	2.13
16	415	13.9	270	---	110	3.0	4.0	2.16
17	310	>13.0	300	---	---	---	3.3	<2.24
18	370	>13.0					3.2	2.15
19	370	>13.0					3.0	<2.34
20	310	(15.0)					2.8	<2.52
21	260	15.0					2.3	2.57
22	245	13.5					2.2	2.48
23	255	13.0						2.46

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 45

Talara, Peru (4.6°S, 81.3°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	10.6					5.4	2.60
01	290	(10.0)					5.0	(2.70)
02	270	9.3					6.2	2.70
03	250	9.3					6.1	2.85
04	240	8.6					5.0	3.00
05	230	7.2					5.2	3.00
06	270	7.6					4.4	2.85
07	270	11.0			121	2.7	4.7	2.80
08	250	13.5	245	---	---	---	6.0	2.85
09	---	14.9	235	---	---	3.9	6.3	2.75
10	---	14.8	230	---	114	4.2	6.4	2.60
11	---	14.7	220	---	117	4.3	5.0	2.50
12	---	14.6	215	---	114	4.4	5.4	2.40
13	---	14.2	220	---	114	(4.4)	5.5	2.30
14	---	13.7	220	---	113	4.3	7.2	2.20
15	---	13.4	215	---	111	4.0	6.1	2.20
16	(240)	(13.1)	230	---	---	---	7.0	(2.20)
17	260	(12.8)			---	---	6.8	(2.20)
18	280	(13.0)					7.0	(2.25)
19	320	(12.9)					4.7	(2.40)
20	340	(12.4)					4.3	(2.40)
21	330	(12.0)					3.6	(2.40)
22	300	(12.5)					3.7	2.45
23	300	(12.0)					5.2	(2.50)

Time: 75.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 13.5 seconds.

Table 46

Elisabethville, Belgian Congo (11.6°S, 27.5°E) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	275	8.8						2.36
01	270	8.4						2.42
02	260	7.6						2.43
03	260	6.8						2.39
04	270	7.6	---	---	120	2.0		2.55
05	260	9.0	250	---	115	3.0		2.63
06	(260)	9.5	240	---	110	3.6		2.50
07	(365)	10.0	235	---	110	3.8		2.30
08	(405)	10.6	230	---	105	4.0		2.13
09	440	11.0	220	---	110	---		2.08
10	460	11.3	220	---	105	---		2.08
11	445	11.6	225	---	105	---		2.11
12	435	11.6	230	---	110	4.0		2.14
13	425	11.5	240	---	110	4.0		2.15
14	415	11.3	240	---	110	3.6	4.3	2.16
15	390	11.2	255	---	110	3.1	3.8	2.15
16	320	11.1	280	---	120	2.4	3.0	2.22
17	315	10.7					3.0	2.23
18	325	11.1					2.6	2.22
19	300	11.4					2.5	2.32
20	280	>11.4						2.40
21	275	11.0						2.43
22	270	9.8						2.37
23	280	9.2						2.36

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 47

Rarotonga I. (21.2°S, 159.8°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	(9.2)					2.0	(2.6)
01	320	(9.2)					2.8	(2.65)
02	330	(8.8)					2.0	(2.5)
03	340	(9.3)						(2.45)
04	300	(9.2)						(2.5)
05	300	(9.2)					1.8	(2.6)
06	280	(9.4)	---	---	---	2.4	2.6	(2.9)
07	260	10.3	260	4.5	120	3.1	3.7	(2.8)
08	280	10.6	250	7.4	115	3.5	4.5	2.7
09	360	10.8	250	7.0	110	3.8	4.8	2.5
10	430	11.8	250	7.4	110	---	5.2	2.4
11	450	12.5	250	7.5	110	4.0		2.4
12	450	13.0	250	7.0	110	4.0		2.4
13	450	13.2	250	7.0	110	4.0		2.4
14	440	13.2	250	6.7	110	4.0		2.4
15	425	12.7	240	6.5	110	3.9		2.4
16	415	11.8	250	6.5	110	3.7		2.5
17	400	11.0	270	6.5	115	3.2	4.9	2.5
18	370	(10.3)	---	---	120	2.3	3.9	(2.5)
19	350	(9.8)					3.8	(2.4)
20	380	(9.4)					3.8	(2.3)
21	390	(9.2)					3.5	(2.35)
22	370	(9.5)					2.8	(2.4)
23	350	(9.2)					3.0	(2.5)

Time: 157.5°W.
Sweep: 1.5 Mc to 20.0 Mc in 5 minutes, manual operation.

Table 48

Watheroo, W. Australia (30.3°S, 115.9°E) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	7.2					3.8	2.45
01	<300	7.0					4.0	2.45
02	300	6.7					3.2	2.4
03	320	6.4					3.2	2.4
04	<310	6.0					3.0	2.4
05	320	6.0	320	3.1		1.8	2.6	2.45
06	280	6.7	270	4.0		2.6	3.3	2.5
07	410	7.7	250	5.0		3.3	4.2	2.5
08	460	8.1	250	5.4		3.7	4.7	2.5
09	470	8.4	240	5.7		4.0	4.8	2.4
10	460	9.1	240	6.0		4.1	5.0	2.4
11	450	9.8	240	6.4		4.2	6.2	2.3
12	450	10.0	240	6.3		4.3	5.4	2.35
13	450	10.0	240	6.2		4.3	4.9	2.3
14	450	9.8	240	6.0		4.2	4.9	2.3
15	440	9.5	240	6.0		4.1	4.8	2.4
16	430	9.0	240	5.8		3.8	4.6	2.4
17	400	9.0	250	5.5		3.4	5.5	2.4
18	(340)	8.5	260	---		2.7	4.0	2.5
19	300	8.4				2.4	3.7	2.5
20	280	8.0				---	3.0	2.5
21	300	7.9					3.6	2.4
22	<310	7.4					3.4	2.5
23	310	7.4					4.0	2.45

Time: 120.0°E.
Sweep: 1.6 Mc to 16.0 Mc in 12 minutes 30 seconds.

Table 49

Buenos Aires, Argentina (34.5°S, 58.5°W) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	380	10.3					6.5	2.5
01	360	10.1					6.5	2.5
02	330	9.8					5.3	2.5
03	350	9.2						2.5
04	350	9.2						2.5
05	280	9.8						2.4
06	260	10.0	280	---	---	---		2.7
07	300	10.5	230	---	---	---	4.5	2.5
08	410	10.8	220	---	---	---	5.8	2.4
09	460	11.1	220	7.6	---	---		2.3
10	500	11.3	220	7.4	---	---		2.4
11	480	11.6	220	7.6	---	---		2.45
12	450	12.0	230	7.5				2.5
13	460	11.5	220	7.7				2.55
14	440	11.6	230	7.0				2.5
15	420	11.2	230	7.1			6.1	2.6
16	410	11.1	250	6.8			6.6	2.6
17	400	11.0	240	---			6.1	2.6
18	380	10.6	270	---			5.5	2.6
19	(350)	10.2					6.5	2.5
20	(400)	(10.2)					5.4	(2.4)
21	420	(10.1)					5.1	(2.3)
22	420	(10.4)					5.6	(2.3)
23	400	10.5					5.0	2.4

Time: 60.0°W.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 50

Christchurch, New Zealand (43.6°S, 172.8°E) December 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	340	8.1					<2.7	2.4
01	340	7.6					<2.2	2.4
02	330	6.9					<2.1	2.4
03	340	6.5					<2.0	2.4
04	320	6.3			---	---		2.4
05	280	6.1			---	---		2.5
06	250	7.0	250	---	---	(3.0)	4.7	2.6
07	(440)	7.6	250	5.2	---	3.4	5.2	2.7
08	450	7.9	250	5.8	---	3.7	5.4	2.5
09	(450)	8.2	---	---	---	---	5.4	2.5
10	450	8.6	230	6.1	---	---	(5.8)	2.5
11	450	9.0	240	6.5	---	---	(4.8)	2.5
12	(450)	9.0	---	---	---	---		2.45
13	450	9.0	---	6.3	---	---	(5.1)	2.4
14	(460)	8.6	---	---	---	---	(6.5)	(2.4)
15	(450)	8.3	---	6.0	---	---	(5.0)	(2.45)
16	440	8.2	250	6.0	---	3.7		2.5
17	(420)	8.2	250	---	---	3.4		2.5
18	(280)	8.2	---	---	---	2.9	5.0	2.6
19	(300)	8.2					4.4	2.5
20	(300)	8.3					3.8	2.5
21	(310)	8.8					4.7	2.4
22	(340)	8.9					<3.2	(2.4)
23	340	8.6					3.6	2.4

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 51

Schwarzenburg, Switzerland (46.8°N, 7.3°E) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	5.3						2.9
01	300	5.2						2.8
02	300	5.0						2.8
03	305	4.9						2.8
04	280	4.8						3.0
05	260	4.3						3.0
06	250	3.8						3.0
07	250	4.6						3.1
08	220	8.7			120	2.1		3.45
09	210	11.0			100	2.5		3.2
10	210	13.4			100	2.8		3.4
11	210	14.0			100	3.0		3.3
12	220	14.2			100	3.1		3.2
13	210	13.9			100	3.1		3.2
14	220	13.8			100	3.1		3.2
15	220	13.1			100	2.8		3.2
16	220	12.4			100	2.6		3.35
17	210	9.9			---	---	2.2	(3.3)
18	220	9.0					3.0	3.3
19	210	8.5						3.3
20	220	7.1						3.2
21	250	6.0						3.1
22	280	6.1						2.9
23	280	6.0						3.0

Time: 15.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 30 seconds.

Table 52

Leopoldville, Belgian Congo (4.4°S, 15.2°E) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	13.3						2.52
01	255	12.0						2.60
02	240	11.0						2.58
03	225	8.8						2.68
04	220	7.0						2.73
05	255	8.4	---	---	125	2.3	3.0	2.70
06	240	10.1	240	---	110	3.1		2.64
07	250	11.0	235	---	105	3.7		2.43
08	---	11.7	225	---	105	4.0		2.20
09	---	12.6	220	---	110	4.2		2.14
10	(430)	13.2	230	---	110	4.2		2.10
11	460	14.0	240	---	110	---		2.11
12	460	14.6	240	---	105	4.1		2.15
13	440	15.0	240	---	110	4.1		2.14
14	440	14.7	235	---	110	3.8		2.16
15	430	14.5	250	---	110	3.3		2.14
16	410	>14.4	260	---	115	2.6	3.0	2.16
17	310	>13.5	310	---			3.0	<2.31
18	370	15.0					2.8	(2.13)
19	340	>14.0					2.2	<2.42
20	275	>15.0					2.2	<2.68
21	240	>15.3						<2.73
22	230	14.5						2.54
23	240	13.7						2.48

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 53

Elisabethville, Belgian Congo (11.6°S, 27.5°E) November 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	9.1						2.40
01	270	8.5						2.36
02	270	7.8						2.38
03	250	7.2						2.39
04	260	8.3	---	---	130	2.0		2.59
05	250	10.0	245	---	110	3.0		2.64
06	(250)	10.8	235	---	110	3.5		2.51
07	---	11.4	235	---	110	3.8		2.38
08	---	11.8	235	---	110	---		2.25
09	(415)	>11.6	240	---	---	---		2.22
10	420	12.2	235	---	---	---		2.18
11	425	12.9	240	6.0	110	---		2.18
12	415	12.1	240	6.2	110	---		2.21
13	415	12.6	240	6.3	115	4.0		2.19
14	380	12.0	250	---	115	3.6	4.0	2.21
15	(350)	11.8	260	---	115	3.0	3.6	2.26
16	285	11.7	---	---	---	---	2.6	2.24
17	305	11.6					2.4	2.31
18	300	12.0						<2.37
19	280	13.0						2.42
20	260	12.4						2.52
21	255	>11.8						2.48
22	260	11.0						2.45
23	255	10.0						2.45

Time: 0.0°.
Sweep: 1.0 Mc to 16.0 Mc in 7 seconds.

Table 54

Lulea, Sweden (65.6°N, 22.1°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	---					2.5	
01	295	(5.0)			---	---		
02	310	(5.0)			---	1.8	2.4	
03	290	5.3	275	---	---	1.9	2.3	
04	350	5.6	250	3.7	110	2.3		---
05	360	6.0	240	3.9	110	2.6		
06	360	6.2	230	4.5	100	3.0		---
07	365	6.4	230	4.5	100	---		---
08	380	6.8	210	4.7	100	---		---
09	385	7.2	225	4.9	100	---		---
10	365	7.3	210	5.0	100	---		(2.7)
11	380	7.3	210	5.0	100	---		(2.6)
12	390	7.2	---	5.0	100	---		---
13	(405)	7.4	230	4.9	100	---		---
14	(360)	7.2	210	4.9	100	---		(2.8)
15	(450)	7.0	---	4.6	100	---		---
16	(400)	6.8	---	4.5	100	---		---
17	(250)	6.0	230	---	110	2.8		---
18	250	6.0	240	---	110	2.5		---
19	250	5.8	245	---	120	2.2		---
20	260	(5.5)			125	1.9		
21	260	(5.7)			---	1.7	2.2	
22	275	(5.4)			---	---	2.4	
23	285	---					2.3	

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 9 minutes, automatic operation.

Table 55

Budapest, Hungary (47.6°N, 19.0°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	310	6.8						
01	300	6.6						
02	300	6.0						
03	295	6.0			130	1.6		
04	260	6.1			130	2.2	3.0	
05	270	6.8			115	2.7	3.5	
06	295	7.2			115	3.1	3.8	
07	310	8.0			110	3.2	4.6	
08	290	8.4			110	3.4	5.0	
09	330	8.4			110	3.4	4.6	
10	340	9.2			110	3.4	4.4	
11	345	9.0			110	3.4	4.5	
12	335	9.0			110	3.4	4.0	
13	335	9.1			110	3.4		
14	320	9.0			110	3.3	3.8	
15	300	8.6			110	3.2	4.0	
16	280	8.6			115	2.9	4.6	
17	275	8.6			120	2.4	4.2	
18	270	8.4			---	---	4.4	
19	270	8.4					3.8	
20	280	8.0					3.2	
21	290	6.9					2.6	
22	310	6.6					2.5	
23	310	6.7						

Time: 0.0°.
Sweep: 1.0 Mc to 20.0 Mc in 1 minute.

Table 56

Delhi, India (28.6°N, 77.1°E) May 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	320	8.6						3.00
01	320	8.8						3.00
02	---	---						----
03								
04	320	7.8						3.00
05	300	7.9						3.10
06	280	8.9						3.25
07	280	9.5						3.25
08	280	9.5						3.25
09	320	10.5						3.00
10	360	11.4						2.80
11	360	12.4						2.80
12	360	13.2						2.80
13	360	14.1						2.80
14	330	14.6						2.95
15	320	14.2						3.00
16	320	13.5						3.00
17	320	13.0						3.00
18	300	12.4						3.10
19	320	11.4						3.00
20	320	10.0						3.00
21	340	9.4						2.90
22	360	9.2						2.80
23	340	>8.7						2.90

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 57

Ahmedabad, India (23.0°N, 72.6°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	9.4					3.3	2.66
01	285	8.7					3.5	2.79
02	290	8.3					3.2	2.80
03	260	7.8					3.2	2.80
04	250	7.2					3.2	2.85
05	250	6.8					3.2	2.95
06	250	7.4	---	---	120	2.0	3.4	3.10
07	250	8.6	230	(4.2)	110	2.7	4.0	3.15
08	255	9.4	225	4.8	107	3.2	4.4	2.85
09	280	10.2	240	5.2	105	3.4	4.3	2.76
10	325	11.4	250	5.5	105	---	4.0	2.72
11	400	12.3	---	5.8	105	---	3.7	2.61
12	400	13.9	---	5.8	105	---	3.8	2.62
13	375	15.2	---	5.9	105	---	3.7	2.66
14	360	15.3	---	5.7	105	3.8		2.70
15	340	15.3	250	5.5	107	3.6		2.74
16	325	15.3	240	5.3	110	3.4		2.80
17	300	>15.0	250	4.8	110	2.9	3.2	<2.80
18	280	15.0	250	4.4	125	2.2	3.8	2.78
19	270	13.9					3.3	2.78
20	280	12.2					3.2	2.70
21	305	11.0					3.2	2.61
22	320	9.8					3.6	2.56
23	325	9.4					3.5	2.62

Time: 75.0°E.
Sweep: 0.6 Mc to 25.0 Mc in 5 minutes, automatic operation.

Table 58

Calcutta, India (22.9°N, 88.5°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	295	8.5					2.1	3.0
01	265	7.5					2.1	3.2
02	260	7.3					2.0	3.1
03	260	7.5						3.1
04	240	6.5						3.15
05	240	5.5					2.1	3.3
06	250	7.5			110	2.3	2.8	3.25
07	250	8.3	---	---	110	2.7	4.0	3.4
08	260	9.5	220	4.4	105	3.1	4.2	3.2
09	300	9.8	220	5.0	100	3.4	4.3	3.0
10	320	11.0	210	5.2	100	3.5	4.0	2.9
11	340	11.5	210	5.2	100	3.6		2.8
12	350	12.0	210	5.3	100	3.7		2.85
13	350	12.2	220	5.2	100	3.5		2.9
14	345	12.3	220	5.2	100	3.4	3.7	2.9
15	325	12.4	210	5.1	100	3.2	3.8	3.0
16	305	12.0	220	5.0	100	3.2	3.7	3.1
17	300	11.7	235	4.8	100	2.9	3.8	3.2
18	260	11.1			100	2.5	3.2	3.3
19	270	10.2					3.0	3.25
20	280	10.4					2.1	3.2
21	290	10.7						3.2
22	300	9.5					1.6	3.2
23	300	9.8						3.15

Time: 90.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 59

Bombay, India (19.0°N, 73.0°E) May 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	360	7.5						2.80
07	420	9.1						2.55
08:30	420	10.2						2.50
09	480	10.8						2.30
10	510	11.5						2.25
11	540	12.2						2.15
12	630	12.6						2.00
13	640	13.0						1.95
14	630	12.9						2.00
15	600	12.8						2.00
16	540	12.3						2.15
17	510	11.5						2.25
18	480	10.9						2.30
19	450	10.5						2.50
20	(400)	(9.8)						(2.60)
21	400	9.0						2.60
22	360	8.1						2.80
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 60

Madras, India (13.0°N, 80.2°E) May 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	9.1						3.00
07	360	10.5						2.80
08	400	11.4						2.60
09	460	11.8						2.40
10	480	11.9						2.30
11	480	12.1						2.30
12	520	12.1						2.20
13	520	12.2						2.20
14	500	12.2						2.25
15	480	12.2						2.30
16	480	12.1						2.30
17	460	12.8						2.40
18	440	12.5						2.50
19	440	12.0						2.50
20	440	11.5						2.50
21	(440)	>11.1						(2.45)
22	(380)	10.5						(2.70)
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 61

Tiruchy, India (10.8°N, 78.8°E) May 1956

Time	*	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00								
01								
02								
03								
04								
05								
06	320	8.5						3.0
07	360	10.7						2.8
08	400	11.2						2.6
09	460	11.4						2.4
10	480	11.2						2.3
11	480	11.1						2.3
12	480	11.1						2.3
13	520	11.2						2.2
14	(480)	(11.7)						(2.3)
15	520	11.3						2.2
16	480	11.0						2.3
17	480	10.8						2.3
18	480	10.6						2.3
19	480	10.3						2.3
20	480	10.2						2.3
21:30	480	9.7						2.3
22	---	---						---
23								

Time: 75.0°E.
Sweep: 1.5 Mc to 18.0 Mc in 5 minutes, manual operation.
*Height at 0.83 foF2.

Table 62

Kodaikanal, India (10.2°N, 77.5°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	10.1						2.75
01	300	9.0						2.90
02	300	8.7						2.80
03	280	7.6						3.00
04	240	6.5						3.15
05	240	5.0						3.20
06	265	7.9	---	---	---	---		3.00
07	255	10.3	245	---	115	3.0		2.90
08	(270)	11.4	235	---	115	---	7.5	2.70
09	(290)	11.8	225	---	---	---	9.0	2.35
10	(300)	11.2	220	---	---	---	10.2	2.30
11	(305)	10.8	220	---	---	---	10.5	2.25
12	(310)	10.9	220	---	---	---	10.6	2.20
13	(300)	11.0	220	---	---	---	10.4	2.20
14	(320)	11.0	220	---	110	---	10.4	2.20
15	---	11.6	225	---	115	3.7	9.8	2.25
16	250	11.8	240	---	120	---	8.0	2.30
17	260	12.2	---	---	---	---	7.0	2.40
18	300	12.1						2.40
19	365	11.1						2.30
20	360	10.8						2.30
21	360	10.5						2.50
22	360	11.2						2.60
23	320	10.2						2.80

Time: 75.0°E.
Sweep: 1.0 Mc to 25.0 Mc in 27 seconds.

Table 63

Townsville, Australia (19.3°S, 146.7°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	255	5.1					2.1	3.0
01	250	5.0					2.1	2.9
02	265	5.0					1.8	2.9
03	250	4.3						3.25
04	250	3.6					2.1	2.9
05	295	3.7					2.1	2.8
06	260	4.0					2.1	2.95
07	240	8.0				2.1	2.9	(3.3)
08	240	>10.6	235	---		2.8	3.7	(3.3)
09	250	11.8	230	4.6		3.2	5.3	3.3
10	250	11.6	210	4.9		3.5	6.0	3.2
11	(250)	11.1	205	4.9		3.6	6.2	3.1
12	270	11.2	210	5.5		3.6	5.8	3.0
13	(280)	11.1	---	5.3		3.7	5.4	3.0
14	(250)	11.0	210	---		3.6	4.7	3.0
15	(275)	10.8	220	4.4		3.4	6.5	2.9
16	(250)	10.8	240	---		3.1	5.8	2.95
17	250	>10.8				2.4	5.8	(3.0)
18	230	>8.5				---	3.7	---
19	225	>8.0					3.5	(3.1)
20	240	7.0					2.1	3.0
21	250	6.5					2.1	2.95
22	250	6.3						3.1
23	250	6.0					2.1	(2.9)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 64

Brisbane, Australia (27.5°S, 152.9°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	260	5.0						2.8
01	265	5.0						2.8
02	270	4.6						2.8
03	260	4.7					2.0	2.75
04	260	4.5						2.7
05	250	4.4						2.8
06	250	4.7				E		2.9
07	230	8.2				2.0		3.3
08	230	9.9	---	---		2.8		3.2
09	(230)	11.0	220	---		3.2	3.8	3.1
10	(250)	11.1	220	---		3.5	4.3	3.1
11	(250)	11.0	220	4.7		3.6	4.5	3.1
12	(250)	10.6	210	4.7		3.6	4.6	2.9
13	260	10.6	210	4.6		3.5	4.2	2.9
14	260	11.0	220	4.5		3.4	4.4	2.9
15	240	10.9	225	---		3.1	4.4	2.9
16	240	10.2				2.5	3.6	3.0
17	230	9.5				<2.0		3.0
18	230	7.6					3.6	2.9
19	240	6.6					3.5	2.8
20	250	6.5						2.8
21	250	5.9						2.8
22	240	5.5						2.8
23	250	5.0						2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 65

Canberra, Australia (35.3°S, 149.0°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	<290	4.4						2.7
01	<260	4.6						(2.75)
02	<270	4.2						2.7
03	<280	4.1						2.8
04	<265	4.0						2.8
05	(225)	3.7						2.85
06	---	3.3						2.85
07	240	(5.5)				(1.9)		3.2
08	230	7.9	---	---		2.4	3.1	3.4
09	245	8.6	240	---		3.0	3.1	3.4
10	245	8.6	230	---		3.2		3.35
11	240	(8.8)	220	(4.6)		3.3		(3.4)
12	250	(8.6)	220	(4.6)		3.4		(3.45)
13	260	(8.6)	215	(4.6)		3.4	4.0	(3.3)
14	250	---	220	(4.3)		3.2	3.6	---
15	240	(8.6)	230	---		3.0	3.2	(3.4)
16	240	(8.5)	240	---		2.4	3.6	(3.3)
17	220	8.4				2.1	3.4	3.25
18	210	7.8				---	3.1	3.1
19	(230)	6.8					2.4	3.0
20	---	5.9						2.9
21	---	5.2						2.8
22	---	4.7						2.9
23	---	4.4						2.9

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 66

Hobart, Tasmania (42.9°S, 147.2°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	300	3.5						2.6
01	300	3.5						2.6
02	300	3.2						2.6
03	300	3.0						2.6
04	300	3.0						2.7
05	270	3.0						2.8
06	270	2.8						2.7
07	270	3.8				1.3		2.9
08	250	7.0				2.1		3.2
09	240	8.4				2.7		3.2
10	240	9.5				3.0		3.2
11	230	10.4				3.2		3.1
12	230	11.5				3.2		3.05
13	230	11.5				3.2		3.0
14	240	11.8				3.0		3.0
15	240	11.5				2.7		3.0
16	230	11.2				2.2		3.0
17	230	10.0				E		3.0
18	230	8.2						2.9
19	250	6.7						2.9
20	250	5.2						2.8
21	250	4.5						2.8
22	270	4.0						2.7
23	270	3.6						2.7

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 67

Christchurch, New Zealand (43.6°S, 172.8°E) May 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	280	4.2						2.7
01	290	4.1						2.7
02	290	4.0						2.7
03	280	3.6						2.75
04	280	3.7						2.85
05	260	3.7						2.9
06	260	3.2						2.9
07	260	4.8			---	1.7		3.1
08	240	7.2	---	---	120	2.2		3.25
09	230	8.6	240	3.7	110	2.6		3.3
10	230	9.3	230	4.2	110	2.9		3.3
11	250	9.8	230	4.3	105	3.1		3.2
12	250	10.4	220	4.7	105	3.2		3.15
13	260	10.4	230	4.7	105	3.2		3.1
14	250	10.3	240	4.3	105	3.0		3.1
15	240	10.4	240	3.7	105	2.6		3.1
16	230	9.8	---	---	110	2.1		3.2
17	230	8.6			---	---		3.05
18	240	7.4						2.9
19	240	6.4						2.9
20	250	5.6						2.9
21	260	4.9						2.8
22	270	4.6						2.8
23	(280)	4.2						2.8

Time: 172.5°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 68

Townsville, Australia (19.3°S, 146.7°E) April 1956*

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	250	>7.0						(2.75)
01	250	6.8						(2.85)
02	250	6.9						(3.0)
03	240	5.5						2.9
04	275	(5.0)					2.4	(2.7)
05	290	5.0					2.1	(2.8)
06	250	5.7				E	2.1	3.0
07	240	>8.4				2.1		---
08	240	>8.4	---	---		2.9		---
09	250	>8.6	240	---		3.3		
10	(250)	>9.0	225	---		3.6		---
11	250	>9.5	210	---		3.7	4.4	---
12	(250)	>9.7	210	---		3.8	4.0	---
13	---	>9.8	---	---		3.8	5.5	---
14	---	>9.4	215	---		3.6	4.7	
15	---	>8.4	225	---		3.4	5.0	
16	---	>8.4	240	---		3.1	4.2	
17	250	>8.4	---	---		---	3.8	
18	250	>7.9				---	3.7	
19	250	>7.7					3.6	
20	240	>7.9					2.1	---
21	250	>7.0					2.0	---
22	255	>7.0						---
23	250	>7.0						(2.8)

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.
*Data observed from April 15 to 30, inclusive.

Table 69

Brisbane, Australia (27.5°S, 153.0°E) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	270	7.2					1.7	2.7
01	260	7.0					2.5	2.7
02	255	6.7					2.3	2.8
03	240	5.8						2.7
04	270	5.5						2.6
05	260	5.5				---		2.7
06	250	6.5				<1.6		2.9
07	230	9.5				(2.3)		3.2
08	230	11.6	---	---		3.0	3.5	3.0
09	(240)	13.0	225	---		3.4	4.6	3.0
10	(250)	13.1	225	---		3.7	4.8	2.9
11	(250)	13.0	210	4.8		3.8	4.9	2.8
12	(250)	13.0	210	---		3.7	4.7	2.8
13	---	13.0	225	---		3.8	4.6	2.8
14	(250)	12.8	220	---		3.6	4.3	2.8
15	240	12.0	230	---		3.4	5.2	2.8
16	240	11.8	---	---		2.9	4.3	2.8
17	240	11.2				E	3.5	2.8
18	240	10.2				---	3.5	2.8
19	250	9.0					2.6	2.7
20	260	8.5						2.8
21	260	8.4					2.6	2.8
22	275	7.4					3.4	2.7
23	260	7.2					2.9	2.7

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 70

Canberra, Australia (35.3°S, 149.0°E) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	---	6.4					3.0	2.8
01	---	6.3					3.0	2.7
02	---	6.0						2.8
03	---	5.8					1.7	2.8
04	---	5.4					1.5	2.8
05	---	4.9						2.8
06	(240)	4.9						2.9
07	230	7.8				2.0	3.1	3.3
08	230	(8.7)	220	---		2.8	3.5	(3.3)
09	230	11.0	210	---		3.2	3.6	(3.25)
10	250	(12.0)	210	---		3.4	3.8	(3.2)
11	240	12.0	210	(4.7)		3.6		(3.1)
12	(240)	12.0	200	---		3.6		3.1
13	(240)	11.9	210	---		3.6		3.1
14	250	12.0	210	---		3.5		3.0
15	250	(11.4)	215	---		3.2	3.4	(3.1)
16	230	(11.2)	225	---		2.9	3.6	(3.1)
17	220	---				2.3	3.1	---
18	220	(9.0)					1.9	(3.1)
19	(220)	(8.5)					2.8	(2.9)
20	(230)	8.1						2.9
21	(240)	7.4						2.95
22	---	6.6					2.9	2.9
23	---	6.6					3.0	2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 16.0 Mc in 1 minute 55 seconds.

Table 71

Hobart, Tasmania (42.9°S, 147.2°E) April 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	290	5.5						2.75
01	290	5.3						2.7
02	300	5.0						2.8
03	300	4.8						2.7
04	280	4.2						2.8
05	280	3.7						2.8
06	280	3.5				---		2.8
07	250	6.2				1.8		3.1
08	250	8.0				2.5		3.2
09	240	9.4				3.0		3.2
10	240	10.8				3.3		3.2
11	240	11.8				3.4		3.2
12	240	11.8				3.4		3.2
13	240	11.8				3.4		3.2
14	240	11.5				3.3		3.2
15	240	11.4				3.1		3.15
16	250	11.2				2.7		3.15
17	250	11.0				2.2		3.1
18	250	11.0				---		3.1
19	250	9.5						3.0
20	250	8.0						3.0
21	250	6.8						2.9
22	280	6.0						2.8
23	280	5.8						2.8

Time: 150.0°E.
Sweep: 1.0 Mc to 13.0 Mc in 1 minute 55 seconds.

Table 72

Lulea, Sweden (65.6°N, 22.1°E) March 1956

Time	h'F2	foF2	h'F1	foF1	h'E	foE	fEs	(M3000)F2
00	315	(4.8)						
01	320	(4.8)						
02	310	(4.5)					1.8	
03	300	(4.4)						
04	300	(4.3)						
05	290	4.1			---	---		---
06	260	5.0			---	1.8		(3.1)
07	250	5.5			120	2.2		3.1
08	250	6.2	---	---	110	2.5		3.0
09	240	6.8	235	3.8	110	2.8		3.05
10	(245)	(7.6)	225	4.0	110	3.0		2.85
11	---	7.8	---	4.1	110	2.9		(2.9)
12	(250)	8.2	---	4.0	110	3.1		2.9
13	240	8.2	---	---	110	3.0		(2.8)
14	240	8.2	---	---	110	2.9		(2.9)
15	240	8.0	---	---	110	2.7		---
16	240	7.8	---	---	120	2.3		---
17	250	7.6			---	1.9		
18	240	6.2			---	1.7		---
19	250	(5.5)			---	---		
20	250	---						---
21	260	(4.8)						---
22	300	(4.5)						
23	305	---						

Time: 15.0°E.
Sweep: 1.5 Mc to 10.0 Mc in 9 minutes, automatic operation.

TABLE 73
IONOSPHERIC DATA

foF2, 0.1 Mc, May 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	73	70	68	66	64	60	60	U F 57	59	J R 60	J R 64	U R 60	B 63	64	65	64	65	66	68	68	67	65	62	U S 58
02	57	U F 57	U F 53	U F 49	U F 50	F 56	F 70	76	86	88	92	94	95	94	93	91	90	87	88	85	84	78	79	U S 76
03	U S 74	F 70	F 67	F 63	F 60	59	59	61	62	63	67	66	67	71	75	76	77	75	75	77	76	74	67	68
04	63	62	57	57	55	55	60	67	68	67	66	H 65	63	60	60	63	67	U S 65	64	61	63	60	55	57
05	53	U S 50	48	F 45	F 40	F 42	50	52	55	59	60	63	64	65	66	68	68	69	69	67	66	67	F 68	66
06	62	63	60	58	52	53	57	64	68	70	75	78	75	79	80	80	82	82	84	80	78	77	73	U S 73
07	69	62	63	64	62	63	70	75	88	94	100	99	103	102	101	104	102	96	96	100	93	80	78	76
08	74	69	68	64	62	63	69	78	F 77	83	89	89	88	92	93	93	93	93	90	87	85	80	U S 74	68
09	64	66	61	62	52	48	51	60	63	74	72	77	79	79	79	79	83	84	86	87	80	75	73	68
10	62	F 59	F 55	55	50	49	61	65	F 68	72	73	75	79	80	81	81	80	83	87	U S 95	90	82	71	67
11	65	64	61	57	54	55	65	69	67	69	68	69	71	72	75	74	73	75	76	80	80	78	73	68
12	67	64	59	55	53	53	62	67	69	71	72	76	78	81	81	82	84	85	84	87	84	79	77	77
13	76	71	70	68	65	59	67	67	71	75	78	78	80	79	82	85	87	88	84	81	77	76	73	70
14	68	65	64	64	61	62	67	69	68	71	72	72	72	72	U S 74	U S 73	72	71	71	69	F 68	U F 69	J F 65	U F 63
15	U F 58	F 60	F 57	F 56	55	60	72	F 68	75	77	86	89	93	92	89	86	87	85	86	84	79	74	71	69
16	66	66	64	60	56	60	70	71	73	75	U S 75	U S 78	79	80	80	80	80	78	U S 76	U S 75	70	68	66	U S 72
17	U S 68	68	67	65	63	63	H 68	75	80	82	85	87	85	79	82	82	80	82	U A 78	76	77	75	71	69
18	70	67	62	57	50	51	54	63	65	69	72	76	74	77	78	79	80	79	76	76	U S 74	72	U S 72	U S 70
19	68	65	63	63	55	54	59	63	67	69	71	74	74	77	78	78	79	79	87	83	76	75	71	68
20	67	67	64	63	56	52	58	59	62	63	61	67	U S 70	70	I C 72	72	72	73	73	75	75	F 76	U F 73	74
21	74	64	63	62	62	58	61	71	79	H 86	U S 92	96	97	97	98	94	91	90	87	87	90	78	U S 74	U S 71
22	64	61	60	60	58	58	63	66	64	64	62	61	64	63	64	I A 65	I A 67	I A 68	70	70	I A 68	70	70	F 69
23	U S 76	73	U S 60	59	55	60	69	75	U S 70	73	76	79	80	82	85	85	87	83	84	81	79	76	75	75
24	F 71	F 75	72	68	58	58	68	78	84	92	94	99	94	U S 92	90	89	87	87	85	87	83	78	75	74
25	75	73	69	64	62	62	70	84	U H 85	88	89	88	89	90	88	86	84	86	87	87	92	90	85	U S 73
26	75	70	67	57	49	43	U S 47	E G 45	E G 48	55	F 58	U F 58	58	63	67	67	68	68	U S 73	70	F 69	U F 72	77	75
27	69	64	F 57	F 57	F 50	50	J F 56	U F 64	72	76	83	86	86	85	86	87	88	88	86	89	88	85	86	82
28	74	74	68	F 60	F 57	U F 53	67	77	82	86	90	92	90	91	90	87	85	85	86	86	83	84	84	80
29	75	70	68	63	58	57	64	66	70	72	77	79	82	86	88	86	82	78	78	76	80	77	76	76
30	72	71	62	62	59	F 52	54	F 56	U F 55	F 63	F 68	76	80	86	90	89	94	88	85	76	U S 74	76	U S 75	74
31	69	65	61	55	52	52	56	59	63	63	59	61	62	62	63	64	63	63	66	64	64	U F 66	F 66	66
MED	69	66	63	60	56	56	62	67	68	72	73	77	79	79	81	81	82	82	84	80	78	76	73	70
NO	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 74

IONOSPHERIC DATA

foF2, 0.1 Mc, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time

Manual ☐ Automatic ☒

	0030	0130	0230	0330	0430	0530	0630	0730	0830	0930	1030	1130	1230	1330	1430	1530	1630	1730	1830	1930	2030	2130	2230	2330
01	75	68	67	68	62	59	62	60	J R 59	63	J R 61	U R 62	U R 62	64	64	66	66	67	66	67	U S 65	64	59	58
02	U S 55	J F 52	U F 48	U F 50	J F 51	F 59	74	U S 78	79	91	93	94	94	94	91	90	88	88	88	85	U S 79	U S 79	U S 77	72
03	F 70	F 67	F 65	F 62	60	57	60	61	64	64	66	65	70	73	75	76	75	73	75	77	74	69	67	66
04	63	58	58	57	56	60	64	70	67	64	65	I C 63	I B 62	60	62	63	64	65	62	61	61	59	56	54
05	52	48	F 46	F 43	41	46	52	53	56	59	61	63	64	65	67	69	68	69	69	66	66	F 67	67	64
06	62	62	58	54	53	54	63	69	70	70	77	76	77	80	80	81	83	81	82	76	76	U S 76	U S 75	70
07	F 66	63	64	63	63	67	70	82	92	96	97	101	101	100	100	105	100	97	98	100	88	79	78	75
08	72	68	67	62	63	67	70	79	80	85	89	89	90	92	92	94	94	U S 92	88	85	F 79	77	68	67
09	64	62	61	60	49	50	54	61	68	71	73	78	80	77	79	82	84	85	86	87	77	72	70	F 67
10	61	57	56	53	48	55	63	68	72	72	75	78	79	80	82	80	81	86	92	92	85	74	70	65
11	67	63	58	56	53	60	69	68	67	69	69	70	72	71	75	73	74	76	77	83	78	U S 72	72	68
12	66	61	58	57	U S 53	60	64	69	70	71	75	78	80	82	81	83	83	85	86	87	82	78	78	76
13	74	74	70	65	63	62	65	70	75	V 75	79	78	79	82	82	87	87	88	80	83	76	U S 74	72	67
14	68	64	64	63	59	64	69	68	67	72	72	72	72	I C 72	I C 73	73	73	71	71	69	F 69	U F 67	U F 64	U F 60
15	U F 60	U F 58	U F 55	55	57	67	72	73	H 76	82	I C 88	90	91	90	85	87	86	85	84	U S 82	U S 75	72	69	67
16	67	66	63	58	55	63	70	71	74	I N 75	U S 72	79	77	80	79	80	79	77	77	70	69	67	70	70
17	68	67	64	66	60	64	71	U S 76	80	84	86	86	84	81	I A 82	I A 80	80	77	78	76	75	72	69	70
18	70	64	57	53	55	53	57	63	69	69	75	75	75	77	78	80	U S 80	78	77	76	U S 74	73	70	70
19	66	63	62	57	52	57	60	65	69	71	71	73	75	77	78	78	80	82	86	79	75	72	69	69
20	67	65	63	59	53	54	61	59	62	I A 63	63	72	69	I C 71	73	72	72	73	74	76	76	U F 73	U F 72	76
21	69	65	61	64	56	58	66	U S 72	85	87	97	97	96	97	98	92	91	89	88	90	84	F 76	69	68
22	64	60	62	U S 58	55	62	63	63	64	64	63	I R 62	63	63	U A 64	I A 66	68	I A 68	I A 69	I A 68	69	69	69	F 70
23	76	66	59	56	56	67	70	80	73	72	79	79	82	83	85	86	85	86	83	77	78	75	75	74
24	F 75	72	71	64	57	63	75	85	H 91	95	98	94	93	92	89	88	87	87	86	86	80	78	73	75
25	73	71	67	62	61	66	H 75	80	U H 92	89	87	88	90	89	87	85	85	86	87	87	90	87	78	74
26	73	J S 67	64	55	46	H 44	46	54	55	59	61	57	60	68	68	68	F 68	U R 73	70	69	F 72	U F 70	79	70
27	65	62	57	J S 50	J S 50	53	59	67	U S 74	82	84	86	85	84	86	88	88	86	87	87	84	85	85	78
28	74	69	63	F 58	F 51	F 61	73	79	84	88	92	91	90	92	89	86	84	85	86	85	84	84	83	78
29	73	68	64	61	58	64	64	69	70	77	78	80	84	86	86	83	78	78	78	76	79	76	78	U S 74
30	70	65	63	60	56	F 50	54	J S 58	F 56	F 67	72	79	84	88	92	88	90	86	84	73	77	76	76	69
31	U S 65	63	60	52	50	55	59	60	64	61	62	60	62	63	64	63	64	64	66	63	F 66	U F 68	F 66	66
MED	67	64	62	58	55	60	64	69	70	72	75	78	79	80	81	81	81	82	82	77	76	73	70	70
NO	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 75

IONOSPHERIC DATA

foFl, 0.1 Mc, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time

Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							L	500	U L 480	U S 500	540	B	B	B	U R 540	540	500	L	L					
02							L	L	L	L	H 510	H 590	U H 590	H 570	U L 570	U H 550	520	L						
03							L	L	500	520	530	H 540	H 530	H 550	530	530	H 520	470	L					
04								L	U L 530	530	U S 530	540	530	530	520	H 510	490	440	L					
05							L	H 440	H 470	H 500	H 510	U S 530	H 540	U S 520	H 530	H 520	500	480	L					
06							L	L	H 550	U L 530	550	H 580	550	550	H 570	H 550	H 540	L	L					
07									L	L	570	560	H 630	620	H 590	560	L	L	L					
08							L	L		600	H 590	600	620	590	590	590	L	L	L					
09								L	H 480	540	U L 560	590	560	600	600	H 580	H 530	470	L					
10							L	L	U L 500	U L 580	590	590	H 580	590	H 600	550	550	L	L					
11							L	L	520	520	540	550	550	570	550	550	530	480	L					
12							L	460	530	H 550	550	H 580	590	H 590	H 590	580	550	L	L					
13						L	L	L	L	580	H 580	600	580	600	U H 590	H 580	540	L	L					
14							L	L	520	530	560	570	H 590	570	570	550	540	U L 490	A					
15							L	L	U L 500	630	H 610	630	600	600	630	H 610	550	L	L					
16							L	U L 480	550	560	510	U H 580	H 590	570	570	H 560	570	U L 530	L					
17							L	H 490	L	H 550	600	H 590	620	600	570	570	540	L	A					
18								470	500	H 580	580	580	H 580	560	H 580	550	570	530	L					
19						L	L	U L 460	H 550	U H 550	U H 550	U R 570	H 590	600	550	U S 550	520	L	L					
20						L	L	H 520	I A 530	H 540	540	540	610	560	I C 570	560	530	U L 550	L					
21							400	L	L	L	L	670	H 630	630	H 600	H 620	U L 570	A	L					
22							L	H 490	U L 550	U S 530	550	540	H 540	U R 550	A 540	A	A	A	A					
23						L	L	L	U R 620	H 560	H 570	560	580	H 570	600	590	U L 550	L	L					
24							L	L	L	H 600	L	L	H 640	H 620	H 600	580	H 530	L	L					
25							L	L	H 540	H 530	670	620	H 600	600	H 580	U H 600	H 550	480	L					
26							U F 420	450	480	U H 500	500	540	520	U R 520	530	520	520	460	L					
27							F 400	490	L	H 620	L	580	600	H 600	600	H 580	550	L	L					
28							L	L	L	L	590	590	570	570	540	550	530	490	L					
29							L	L	L	560	L	L	570	570	570	L	L	L	L					
30							420	450	F 510	520	580	590	590	590	H 590	H 580	H 530	490	L					
31							L	H 500	500	H 530	U R 540	H 530	550	U R 530	H 530	U R 530	H 520	500	L					
MED								48	52	54	55	58	58	57	57	56	53	48						
NO							4	13	21	27	27	28	30	30	31	29	27	14						

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 76

IONOSPHERIC DATA

foE, 0.05 Mc, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time

Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							U R 230	B	R	R	B	B	B	R	R	B	R	R	R					
02							H 240	H 300	U R 320	360	U R 380	U R 390	I B 400	U R 400	H 370	H 360	330	310	H 240					
03							H 230	290	320	355	H 370	390	390	395	390	370	340	300	245					
04							B	295	340	365	380	390	U R 390	I R 390	H 380	360	H 340	U A 310	245					
05							U A 230	275	330	370	390	U R 405	U A 390	395	R	355	I A 330	295	200					
06							245	290	325	350	U R 390	395	400	U R 385	A	A	A	H 300	H 240					
07							230	285	330	350	360	380	390	390	385	370	340	310	265					
08							225	290	330	350	U A 360	A	A	A	A	A	350	300	240					
09							H 240	280	325	U R 355	360	A	I R 380	H 390	370	U R 360	340	300	245	S				
10							H 240	295	355	370	I A 390	400	400	400	395	380	340	300	250					
11							240	300	340	360	I A 375	U R 390	400	400	390	370	345	305	245	U A 160				
12						160	230	285	330	A	A	A	400	H 400	290	375	345	310	260					
13							H 240	290	335	375	380	U R 390	390	U R 385	380	H 370	H 345	310	U A 250	S				
14							H 240	U A 310	330	U R 370	I A 390	H 400	400	U A 400	400	390	380	U S 315	240	S				
15							245	310	350	370	385	400	405	U R 400	H 400	H 380	360	315	265					
16							H 245	310	355	375	A	A	I R 400	H 400	I A 410	395	370	330	265	S				
17						170	245	310	330	360	U S 400	U R 400	I R 405	H 405	H 395	390	355	315	250					
18							230	A	A	I A 370	380	U R 400	420	410	U S 400	390	355	I A 335	A	S				
19						U R 165	245	305	U A 345	U A 360	U A 360	U A 390	400	405	395	380	350	315	U A 260	185				
20							245	290	330	355	350	H 400	H 415	410	I C 415	400	365	325	270	U A 175				
21							U R 250	310		A	A	U A 375	A	A		400	390	365	310	260	U R 175			
22							A	310	I A 360	U A 360	A	A	400	U R 400	I A 400	U A 380	365	320	A					
23						S	A	300		A	A	H 390	I R 390	400	400	400	380	360	335	A				
24						A	245	U A 305		A	A	395	400	420	I A 405	400	380	360	H 325	H 260	S			
25						H 180	255		A	A	375	I A 375	R	A	U A 395	U A 385	A	A	315	260				
26						145	U R 245	H 310	350		A	A	A	R	395	395	375	350	U A 310	U R 280	U A 180			
27						175	245	300	350	I A 380	I A 380	I A 385	I A 390	I A 390	U R 400	U R 390	H 350	310	260	170				
28							U A 240	290	320	330	380	I A 390	400	400	A	A	A	310	245	190				
29						185	250	310	330	335	U A 335	U A 355	A	A	380	370	330	U R 300	250	185				
30						R	250	I R 310	345	R	A	A	A	A	A	A	A	315	265	B				
31						170	245	295	325	R	A	A	U R 390	I A 390	H 400	U R 390	350	H 315	270					
MED						170	240	300	330	360	380	U 390	400	400	395	380	350	310	250	180				
NO						8	28	28	25	23	24	20	24	26	25	25	26	30	27	8				

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 77
IONOSPHERIC DATA

foEs, 0.1 Mc, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	S	S	S	S	S	B	G	B	G	G	B	B	B	G	G	B	G	G	J 28	J 26	18	S	S	S
02	S	S	S	S	S	B 25		G	G	G	G	G	B	B	G	38	39	41	J 44	22	S	S	S	S
03	S	S	S	S	S	J 30	G	G	G	39	43	40	41	41	G	38	G	G	G	17	S	S	S	S
04	J 19	J 25	J 27	U B 28	19	B	24	30	37	G	J 47	G	41	G	44	42	35	36	26	J 50	J 36	J 34	J 30	J 22
05	J 21	J 28	22	J 23	J 22	J 31	25	28	G	G	G	G	39	G	G	38	42	J 35	J 24	18	S	S	S	S
06	S	12	S	S	S	16	G	30	35	J 47	G	G	G	G	J 44	37	35	28	27	J 24	S	S	S	S
07	J 34	S	26	24	S	18	25	G	36	G	G	G	G	G	G	G	38	33	27	20	S	S	S	S
08	S	S	S	S	S	J 31	J 30	30	34	44	G	B	42	40	J 58	36	36	35	J 32	J 58	S	S	S	S
09	S	S	S	S	S	S	G	29	G	G	39	38	B	41	G	G	G	32	J 30	22	J 24	S	S	S
10	S	S	S	S	S	S	G	G	G	G	45	G	G	G	G	G	36	G	G	J 25	S	J 23	S	S
11	S	S	S	S	S	S	25	33	J 38	37	J 40	G	G	G	G	G	G	G	28	J 24	J 22	J 19	S	S
12	S	S	S	23	J 20	G	25	31	35	41	39	42	G	G	G	G	J 41	J 35	28	17	S	S	S	S
13	S	S	S	S	S	16	30	32	38	39	39	G	G	G	G	G	37	34	J 34	G	21	J 26	J 23	S
14	20	S	S	S	S	S	26	J 33	34	38	40	G	G	42	G	G	40	42	34	20	S	S	S	S
15	S	S	S	S	S	B	G	G	38	43	45	42	G	G	41	G	G	G	28	33	S	S	S	22
16	S	S	S	S	S	B	27	34	38	42	J 62	J 64	45	G	42	G	G	G	28	18	S	S	S	S
17	S	S	S	S	S	G	25	32	35	G	G	G	G	47	J 92	J 63	47	J 42	76	J 37	J 36	J 29	J S 17	J 38
18	S	J S 28	25	S	S	22	J 30	J 50	39	39	40	42	44	44	J 72	G	40	44	36	18	S	J 24	J 19	S
19	S	S	J 34	B	S	G	26	32	40	43	41	43	G	G	G	42	39	38	27	G	S	S	S	B
20	S	S	S	S	S	B	G	33	J 66	39	40	38	43	G	C	G	40	37	38	34	J 30	J 22	J 31	S
21	S	S	S	S	J 18	J 31	26	33	J 46	J 70	47	57	H 45	43	G	G	41	46	39	G	J 48	J 31	J 20	S
22	B	B	S	17	J 32	J 34	33	J 43	J 53	53	J 82	56	44	58	58	J 73	J 87	J 72	J 62	J 68	J 68	J 74	J 40	J 28
23	J 38	J 39	J 54	J 24	J 20	25	30	40	J 40	J 40	G	47	46	G	49	50	48	43	36	J 54	19	24	19	40
24	J 67	J 64	J 37	J 31	18	23	36	44	40	39	43	G	G	41	G	G	43	G	30	19	24	J 58	J 45	J 32
25	J 23	25	S	S	S	G	G	32	39	42	48	50	50	48	44	42	40	G	30	J 76	J 24	S	S	S
26	S	J 17	17	S	S	G	G	G	G	44	J 54	41	G	47	42	49	44	39	G	21	17	20	J 32	S
27	S	S	S	J 37	S	G	26	32	G	40	40	42	40	40	39	36	G	G	29	21	30	J 34	J 30	J 23
28	S	S	S	S	S	B	31	32	38	35	37	42	41	43	45	38	36	26	G	22	J 27	J 48	J 34	J 28
29	J 22	S	S	S	S	G	27	S	35	38	38	41	41	40	37	34	31	G	G	21	S	S	28	3
30	S	S	S	S	S	G	G	G	G	39	48	J 50	43	44	41	39	36	G	G	23	S	S	19	J 29
31	S	J 19	S	S	S	G	27	31	36	39	38	39	36	41	42	36	28	G	G	22	S	29	21	S
MED	U 22	U 25	U 26	U 24	U 20		25	32	36	39	40	39		40			37	33	28	22	U 24	U 29	U 28	U 28
NO	9	10	8	9	7	27	31	30	31	31	31	31	31	31	30	31	31	31	31	31	15	15	15	11

TABLE 78

IONOSPHERIC DATA

fmin, 0.1 Mc, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	E S 15	E S 16	E S 16	E S 16	E S 16	23	16	30	23	27	38	40	42	31	27	40	26	24	17	E S 16	E S 16	E S 16	E S 14	E S 16
02	E S 17	E S 16	E S 13	E S 13	E S 16	17	16	19	23	29	22	45	44	34	27	26	16	17	E S 15	E S 16	E S 16	E S 16	E S 16	E S 16
03	E S 16	E S 13	E S 11	E S 12	E S 16	E S 16	16	16	20	18	18	24	20	25	27	25	19	16	17	E S 16	E S 16	E S 17	E S 16	E S 18
04	E S 16	E S 17	E S 16	21	E S 16	20	18	26	30	27	24	26	28	28	16	20	20	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
05	E S 16	E S 16	E S 12	E S 14	E S 12	E S 11	16	16	16	19	19	23	23	23	24	15	18	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
06	E S 16	E	E S 12	E S 12	E S 13	E S 16	16	22	17	20	25	23	26	22	24	21	20	18	16	16	E S 16	E S 16	E S 15	E S 16
07	E S 16	E S 16	E S 16	E S 16	E S 13	E S 16	16	16	19	20	22	22	24	25	23	21	20	20	16	E S 16	E S 16	E S 16	E S 16	E S 16
08	E S 16	E S 16	E S 14	E S 16	E S 13	E S 15	16	17	16	23	27	40	30	31	30	28	19	18	16	E S 15	E S 16	E S 16	E S 16	E S 16
09	E S 16	E S 16	E S 16	E S 16	E S 13	E S 15	16	18	19	25	24	28	41	32	30	22	20	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
10	E S 16	E S 14	E S 14	E S 16	E S 16	E S 16	16	16	16	17	16	22	20	20	22	22	16	16	16	E S 16	E S 16	E S 16	E S 16	E S 16
11	E S 16	E S 16	E S 16	E S 16	E S 16	E S 17	16	20	25	20	17	21	22	21	22	19	18	19	16	15	E S 16	E S 16	E S 16	E S 16
12	E S 16	E S 16	E S 16	E S 16	E S 17	15	15	16	16	18	18	20	19	22	20	18	21	19	17	E S 16	E S 16	E S 16	E S 16	E S 16
13	E S 12	E S 16	E S 18	E S 11	E S 16	16	16	16	16	20	18	18	19	22	20	19	16	19	16	15	E S 16	E S 16	E S 16	E S 16
14	E S 16	E S 16	E S 16	E S 17	E S 16	E S 18	16	16	16	26	25	21	26	21	28	27	20	20	16	E S 16	E S 16	E S 16	E S 16	E S 16
15	E S 16	E S 12	E S 13	E S 16	E S 13	17	16	16	18	19	19	20	29	28	25	19	17	18	18	E S 16	E S 16	E S 15	E S 16	E S 16
16	E S 16	E S 14	E S 16	E S 16	E S 16	17	16	16	20	18	20	23	20	20	24	28	18	20	19	16	E S 16	E S 16	E S 16	E S 16
17	E S 15	E S 16	E S 16	E S 16	E S 16	16	17	16	20	18	20	20	20	22	21	19	30	22	17	E S 16	E S 16	E S 15	E S 16	E S 16
18	19	E S 16	21	E S 16	E S 16	E S 16	16	16	16	20	21	21	21	22	19	20	27	16	16	16	E S 16	E S 16	E S 16	E S 15
19	E S 16	E S 16	E S 14	19	E S 19	15	16	16	19	20	19	16	16	24	25	23	21	23	16	16	E S 16	E S 16	E S 16	20
20	E S 16	E S 15	E S 15	E S 11	E S 13	19	14	17	16	24	20	23	27	28	C	27	21	24	20	16	E S 15	E S 16	E S 16	E S 16
21	E S 16	E S 16	E S 16	E S 16	E S 13	E S 15	19	16	26	17	22	16	26	24	23	21	16	19	16	16	E S 16	E S 16	E S 16	E S 16
22	25	20	E S 16	E S 16	E S 12	E S 16	17	16	16	17	19	25	21	26	20	20	18	21	20	E S 16	E S 16	E S 16	E S 16	E S 16
23	E S 16	E S 13	E S 14	E S 16	E S 13	E S 16	16	20	16	19	19	29	21	23	19	19	19	21	17	E S 16	E S 16	E S 16	E S 16	E S 16
24	E S 16	E S 12	E S 13	E S 16	E S 13	15	16	16	16	18	20	24	24	23	26	25	19	20	16	16	E S 15	E S 16	E S 16	E S 15
25	E S 14	E S 16	E S 16	E S 16	E S 16	16	16	19	16	17	24	30	22	28	24	19	16	20	16	E S 16	E S 16	E S 16	E S 16	E S 16
26	E S 16	E S 13	E S 12	E S 15	E S 16	12	13	16	16	20	17	20	22	20	20	20	19	20	16	15	E S 15	E S 16	E S 16	E S 16
27	E S 15	E S 15	E S 15	E S 11	E S 13	16	16	20	20	21	22	20	24	28	23	22	17	20	16	16	E S 16	E S 16	E S 16	E S 16
28	E S 16	E S 16	E S 16	E S 16	E S 13	18	16	16	16	16	18	19	21	21	20	18	18	17	16	16	E S 16	E S 16	E S 16	E S 16
29	E S 16	E S 16	E S 16	E S 16	E S 16	16	22	18	25	20	19	25	26	28	27	21	20	22	18	16	E S 16	E S 16	E S 16	22
30	E S 16	E S 16	E S 16	E S 16	E S 16	E S 16	17	21	20	19	29	25	32	33	25	27	24	21	22	20	E S 16	E S 16	E S 16	E S 16
31	E S 16	E S 16	E S 16	E S 16	E S 22	E S 16	E S 16	22	20	27	24	32	26	27	27	26	23	21	31	16	E S 16	E S 16	E S 16	E S 16
MED																								
NO																								
RAN																								

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 79

IONOSPHERIC DATA

h'F2, Km, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							L	430	365	U F 500	535	U F 500	B	545	510	475	455	420	L					
02							L	L	L	L	295	360	370	370	370	L	355	L						
03							L	L	420	470	465	540	525	505	465	430	410	390	L					
04								L	L	470	550	560	550	590	615	560	470	400	L					
05							L	L	L	500	585	495	H 510	535	515	470	435	390	L					
06							L	L	330	U L 305	435	405	420	410	400	385	375	L	L					
07									L	L		315	355	370	370	330	L	L	260					
08							L	L		355	340	360	405	375	360	365	L 335	U L 310	275					
09								L	440	400	L	425	350	395	420	425	370	335	L					
10							L	L	L	L	395	390	390	380	390	L	380	L	L					
11							295	L	435	430	470	470	465	480	430	425	410	380	305					
12							300	U L 350	L	420	425	460	430	410	390	390	370	330	L					
13						325	305	L	295	365	390	425	410	450	410	390	350	L	L					
14							L	L	380	440	425	460	470	480	475	440	430	380	300					
15							L	L	325	450	375	410	380	U S 390	415	410	390	360	L					
16							295	330	380	L	330	U N 430	440	460	450	440	435	395	L					
17							L	330	L	370	435	415	435	490	420	410	410	380	A					
18								375	455	490	495	455	480	465	465	430	435	400	L					
19						275	280	370	455	L	490	480	580	500	440	455	460	L	340					
20						360	L	505	U A 535	530	640	540	570	510	I C 495	480	455	L	L					
21							375	L	L	L	L	365	380	420	380	390	360	L	L					
22							L	375	L	490	580	630	560	635	560	A	A	A	E A 410					
23						295	270	L	430	380	420	L	435	440	435	435	400	370	L					
24							L	L	L	L	L	L	405	410	425	390	L	360	L					
25							L	410	H 290	280	435	435	400	405	400	400	400	340	L					
26							L	G	G	615	F 530	U F 530	660	590	510	490	440	420	320					
27							L	L	L	400	L	360	405	435	400	370	360	L	295					
28							L	275	350	L	365	370	380	380	L	L	350	335	305					
29							305	L	L	425	390	400	390	380	390	360	350	340	L					
30							400	340	U F 450	500	460	425	435	445	410	385	365	330	L					
31							L	L	440	470	605	560	560	610	540	515	450	420	L					
MED							U 300	370	425	440	435	430	430	445	420	425	400	380	U 300					
NO						4	9	12	18	23	26	29	30	31	30	27	28	21	8					

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 80

IONOSPHERIC DATA

h'F, Km, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Automatic ☒ Mean Time

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	315	300	300	305	295	300	270	U F 255	250	200	210	B	B	B	215	E B 230	240	250	275	280	275	280	295	U S 305
02	315	U S 330	330	320	300	290	250	235	230	220	H 205	H 205	205	210	210	H 215	230	U A 260	U A 290	260	250	280	290	285
03	290	295	270	290	280	280	260	245	240	240	215	H 230	H 210	H 200	240	240	H 245	245	270	285	265	255	275	305
04	305	335	350	330	295	315	285	250	235	225	A	220	230	225	240	245	245	250	270	U A 330	U A 290	300	305	320
05	330	345	335	320	315	290	250	225	H 215	H 210	H 225	225	210	205	H 205	H 240	225	250	250	275	290	310	315	320
06	325	315	290	300	280	250	250	215	H 210	I A 220	225	H 200	215	215	H 235	H 210	H 225	235	250	260	265	290	285	285
07	285	320	315	305	280	260	240	220	H 210	230	215	210	H 210	H 200	H 210	220	230	235	250	260	240	245	265	270
08	285	290	300	290	300	300	250	240	225	220	185	200	200	220	235	230	220	240	U A 260	265	250	255	290	350
09	330	325	340	300	260	290	250	250	H 210	240	220	220	220	220	220	H 225	H 220	235	265	280	240	270	270	270
10	280	290	300	290	290	290	260	240	220	210	210	215	H 210	220	H 210	230	230	220	250	265	240	250	265	270
11	290	280	280	280	290	305	260	240	230	205	230	210	220	215	220	220	230	240	260	275	260	265	265	250
12	270	280	290	280	295	300	250	240	230	H 210	205	H 205	200	H 215	H 210	225	250	240	255	265	250	270	290	295
13	310	305	285	285	300	315	260	240	230	200	H 200	H 180	215	215	H 230	220	230	225	250	260	260	280	270	260
14	290	300	300	290	280	285	250	230	215	220	210	210	H 200	210	220	240	230	A	A	275	270	270	F 280	F 280
15	F 280	F 270	270	265	265	270	245	245	215	225	H 220	210	215	210	220	H 220	220	245	250	270	245	255	280	280
16	280	280	275	260	275	295	250	245	235	U A 215	210	240	H 220	210	210	H 200	230	230	H 240	280	260	270	300	300
17	300	310	310	290	260	270	H 240	H 215	H 210	215	200	H 205	H 200	220	U A 220	U A 260	250	U A 255	I A 265	275	280	280	280	310
18	300	300	305	315	290	290	235	215	210	215	215	210	220	220	U A 225	215	230	U A 240	265	275	250	275	E S 300	305
19	E S 270	E S 290	E A 340	305	270	275	230	215	H 210	H 200	H 205	H 200	H 200	230	220	220	230	230	240	265	250	265	275	E B 300
20	285	E S 315	295	270	290	280	270	245	I A 230	H 210	190	210	220	220	I C 220	215	230	240	A	295	285	290	310	290
21	300	325	325	305	300	325	240	235	245	H 200	210	I A 210	H 210	230	H 210	H 215	240	I A 250	U A 260	280	270	260	250	280
22	E B 295	E B 300	E S 300	290	U A 300	U A 280	U A 245	I A 240	U A 235	A	A	U A 240	H 200	H 225	A	A	A	A	A	E A 320	I A 310	U A 300	U A 320	U A 320
23	U A 320	U A 300	U A 330	315	310	280	250	U A 245	215	H 190	H 190	U A 250	240	H 205	220	U A 245	A	A	U A 250	U A 280	260	U A 270	290	U A 300
24	U A 340	U A 330	290	250	270	265	250	250	230	H 210	200	210	H 210	H 220	H 220	H 210	H 225	240	250	275	260	E A 335	U A 315	E A 335
25	U A 320	320	300	315	290	270	240	225	H 215	195	250	215	H 205	215	H 210	H 210	H 225	235	260	270	270	265	270	250
26	310	290	275	280	315	310	250	220	H 215	H 240	A	220	220	H 220	225	A	240	U A 270	255	300	275	290	290	255
27	270	290	300	310	275	270	250	220	205	H 220	H 200	215	220	H 200	215	H 220	230	235	250	270	270	U A 285	U A 290	U A 260
28	260	270	270	290	U S 275	270	U A 250	235	215	210	200	H 185	230	230	230	H 215	220	235	260	270	260	U A 300	U A 295	U A 290
29	280	280	300	310	295	270	250	230	220	210	200	U A 210	210	210	200	220	225	220	245	270	265	270	290	300
30	285	270	280	300	270	280	270	240	225	215	U A 230	220	215	U A 230	H 215	H 225	H 225	235	265	260	270	270	280	U A 275
31	290	280	270	E S 275	285	270	245	H 250	240	H 225	240	H 220	220	205	H 220	U R 270	220	230	U B 240	270	275	290	290	280
MED	290	E 300	300	290	290	280	250	240	220	215	210	210	210	215	220	220	230	240	255	270	265	270	280	285
NO	30	30	30	31	31	31	31	31	31	30	28	30	30	30	30	28	29	28	28	30	31	30	30	29

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 81

IONOSPHERIC DATA

h'E, Km, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							119	B	111	109	B	B	B	B	B	B	119	121	119					
02							113	U B 109	109	107	107	U B 109	I B 113	U B 117	H 107	H 109	105	109	113					
03							111	105	105	103	H 103	105	101	U B 107	109	109	109	109	119					
04							B	U B 121	109	U B 109	105	109	105	105	H 101	105	H 109	109	115					
05							115	109	105	109	105	U B 109	U B 109	105	107	105	107	109	111					
06							119	U B 119	109	109	109	105	109	105	U B 109	107	109	H 111	H 109					
07							119	109	109	107	103	109	109	105	109	109	109	U B 113	119					
08							119	109	109	109	109	105	U B 109	U B 111	U B 109	I A 109	109	109	111					
09							H 115	109	109	U B 109	105	109	109	105	105	105	105	109	111	S				
10							H 113	109	105	105	101	109	101	105	109	109	109	109	111					
11							119	111	109	105	101	109	109	107	105	105	109	111	115	125				
12						U S 119	115	115	109	103	101	101	101	H 105	105	105	105	109	111					
13							H 115	109	105	109	101	101	101	101	105	H 101	H 105	109	113	S				
14							H 109	105	101	U B 109	109	H 101	109	101	U B 109	109	109	109	109	S				
15							109	103	103	101	101	101	101	U B 109	H 109	H 101	105	109	U B 117					
16							H 119	117	109	101	A	A	101	H 101	101	109	105	109	115	S				
17						U S 139	115	U B 109	105	103	101	101	101	H 101	H 105	103	109	109	111					
18							109	U A 101	101	101	101	101	101	101	U S 101	101	U S 109	105	111	S				
19						119	105	101	101	101	101	101	101	U B 109	U B 109	105	U B 105	U B 109	109	121				
20							109	105	101	105	101	H 101	U B 109	U B 109	I C 109	U B 109	105	105	109	129				
21							111	101	103	101	101	101	U A 101	I A 101	101	101	109	111	115	111				
22							A	109	109	103	105	105	U B 109	U B 109	105	110	109	111	E B 119					
23						S	111	109	105	I A 103	H 101	105	105	105	105	105	109	U B 111	119					
24						A	111	109	103	105	103	103	101	109	109	111	103	H 109	H 111	S				
25						U S 125	U B 111	U B 109	105	103	105	U B 111	U B 107	U B 111	109	109	109	109	115					
26							115	111	H 109	109	A	103	105	109	109	109	109	109	115	119				
27							149	113	U B 111	U B 105	109	107	105	109	109	U S 109	H 109	109	109	U S 125				
28								111	109	103	101	U A 101	I A 103	105	101	A	A	A	113	145				
29							130	111	105	109	105	101	105	105	109	A	A	A	103	A 103				
30							129	111	109	109	101	U B 107	103	U B 111	115	109	109	U B 109	109	B 111				
31						U S 119	109	103	103	109	101	109	U B 107	U B 109	U A 101	U A 119	U A 111	H 101	109					
MED						125	111	109	105	105	103	105	106	106	108	109	109	109	111	125				
NO						9	29	30	31	30	29	29	30	30	28	28	29	30	30	7				

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 82
IONOSPHERIC DATA

h'Es, Km, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	S	S	S	S	S	B	G	B	G	G	B	B	B	G	G	B	G	G	155	125	121	S	S	S
02	S	S	S	S	S	B	E G 145	G	G	G	G	G	B	B	G	E G 149	127	121	121	125	S	S	S	S
03	S	S	S	S	S	119	G	G	G	119	119	135	135	131	G	131	G	G	G	119	S	S	S	S
04	129	121		U B 119	111	B	119	129	121	G	109	G	141	G	129	109	131	119	121	121	121	121	119	119
05	125	119	121	115	111	111	119	139	G	G	G	G	109	G	G	129	109	115	115	119	S	S	S	S
06	S	125	S	S	S	169	G	123	111	111	G	G	G	G	109	107	107	109	125	125	S	S	S	S
07	111	S	129	129	S	135	121	G	129	G	G	G	G	G	G	G	127	123	119	111	S	S	S	S
08	S	S	S	S	S	119	119	139	121	109	G	B	109	109	105	109	135	119	115	109	S	S	S	S
09	S	S	S	S	S	S	G	139	G	G	109	111	B	135	G	G	G	145	119	111	111	S	S	S
10	S	S	S	S	S	S	G	G	G	G	111	G	G	G	G	G	135	G	G	117	S	109	S	S
11	S	S	S	S	S	S	131	119	111	115	105	G	G	G	G	G	G	G	139	119	109	109	S	S
12	S	S	S	121	119	G		119	115	109	109	107	G	G	G	G	125	123	119	119	S	S	S	S
13	S	S	S	S	S	141	141	129	111	111	121	G	G	G	G	G	119	127	113	G	119	119	121	S
14	139	S	S	S	S	S	125	109	115	119	109	G	G	111	G	G	121	115	109	115	S	S	S	S
15	S	S	S	S	S	B	G	G	119	115	111	115	G	G	135	G	G	G	121	111	S	S	S	111
16	S	S	S	S	S	B	131	119	121	117	119	105	139	G	115	G	G	G	121	115	S	S	S	S
17	S	S	S	S	S	G	141	129	119	G	G	G	G	131	119	121	121	117	111	111		109	109	101
18	S	105	117	S	S	119	115	109	111	125	121	139	129	131	119	G	119	111	109	111	S	107	109	S
19	S	S	111	B	S	G	121	111	111	109	109	107	G	G	G	121	119	119	117	G	S	S	S	B
20	S	S	S	S	S	B	G	149	109	109	109	111	129	G	C	G	125	119	111	113	109	109	105	S
21	S	S	S	S	109	109	119	121	105	105	103	101	H 101	101	G	G	125	119	111	G	109	109	109	S
22	B	B	S	105	103	109	115	109	105	109	105	109	121	131	121	123	117	115	111	109	109	109	109	109
23	109	103	105	109	109	119	111	111	109	109	G	161	149	G	129	121	115	115	111	109	109	109	109	107
24	109	109	103	105	119	115	115	109	109	109	115	G	G	115	G	G	109	G	125	119	113	109	109	109
25	109	109		S	S	S	G	G	131	119	111	109	109	111	111	111	111	G	119	111	111	S	S	S
26	S	119	121		S	S	G	G	G	G	109	111	115	G	125	129	119	119	119	G	121	139	135	129	S
27	S	S	S	129		S	G	149	121	G	111	115	109	109	109	105	109	G	G	131	119	111	109	109	105
28	S	S	S	S	S	S	B	115	121	109	111	101	101	139	129	121	107	105	105	G	140	115	101	109	107
29	105	S	S	S	S	G	130	S	119	111	109	103	109	107	105	103	103	G	G	101	S	S	109	B
30	S	S	S	S	S	G	G	G	G	119	109	109	115	119	109	109	111	G	G	129	S	S	125	119
31	S	119	S	S	S	G	121	129	119	119	115	109	105	101	101	101	101	G	G	119	S	109	109	S
MED	110	119	117	117	111	119	121	121	113	111	109	109	118	117	117	110	119	119	119	118	111	109	109	109
NO	8	9	7	8	7	11	19	22	22	23	23	18	16	16	16	16	24	19	24	28	14	15	15	9

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 83
IONOSPHERIC DATA

(M3000)F2, May 1957

Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Manual ☐ Mean Time Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01	260	260	245	250	265	265	275	U F 275	280	J R 250	R	U R 255	B	240	245	255	260	260	275	275	265	260	260	U S 255
02	245	U F 245	U F 250	U F 260	U F 265	F 275	F 305	310	300	285	275	275	270	270	265	265	275	280	280	285	270	270	265	U S 265
03	U S 260	F 260	F 260	F 260	F 270	280	290	275	260	250	255	235	240	235	245	250	255	255	260	270	275	270	250	250
04	250	245	245	255	260	275	290	275	260	250	225	H 230	235	230	220	230	245	U S 255	270	265	260	255	250	250
05	245	U S 245	245	F 260	F 260	F 285	280	265	250	250	230	250	245	240	240	245	250	260	270	285	250	245	F 255	245
06	240	255	245	265	265	300	290	305	295	280	250	265	260	265	265	265	270	270	280	280	265	270	260	U S 265
07	275	250	250	255	270	290	310	285	290	275	280	270	270	265	260	270	275	275	280	280	285	280	275	265
08	265	260	260	250	255	265	290	300	F 295	275	275	275	265	265	270	270	270	280	285	275	275	245	U S 260	230
09	240	240	240	250	270	280	280	270	245	270	255	260	265	270	265	260	270	275	270	285	290	265	255	260
10	260	F 260	F 265	270	270	285	290	290	F 290	265	270	275	270	270	270	270	265	265	260	U S 275	275	275	265	265
11	255	265	265	250	260	275	295	270	255	260	255	250	255	250	260	260	260	265	270	265	265	270	265	265
12	270	270	260	255	265	270	285	270	270	265	265	255	265	260	265	260	265	270	270	270	270	265	255	255
13	250	245	260	250	235	260	280	275	290	265	270	260	270	255	260	260	265	270	275	270	275	270	260	270
14	270	250	260	260	265	275	300	285	270	260	260	255	250	250	U S 250	U S 260	255	260	275	275	F 280	F	F	U F 270
15	F	F 280	F 275	F 280	265	290	300	F 285	295	260	260	260	260	260	260	260	260	265	260	285	275	265	260	255
16	260	265	275	280	275	290	305	290	275	260	U S 270	U S 260	250	250	255	255	255	260	U S 270	U S 280	265	265	260	U S 255
17	U S 260	250	250	250	270	280	H 300	280	280	270	245	260	250	245	255	260	260	265	U A 270	285	275	265	265	270
18	255	265	260	255	260	300	275	280	255	240	245	250	245	250	250	255	255	265	270	270	U S 270	260	U S 250	U S 260
19	250	250	250	265	265	280	290	270	245	245	245	245	255	240	250	250	240	260	265	275	260	260	255	245
20	245	250	265	260	260	280	260	245	235	240	225	240	U S 230	245	C	240	250	250	260	265	265	F 260	U F 265	260
21	260	235	240	250	265	265	270	270	290	H 260	U S 255	260	255	250	250	255	255	265	265	265	275	280	U S 270	U S 260
22	260	245	255	265	270	280	275	275	250	250	230	225	235	220	235	A	A	A	260	270	A	250	250	F 255
23	U S 260	260	U S 260	255	245	275	270	265	U S 270	275	265	245	250	250	250	245	255	260	265	270	270	270	265	265
24	F 265	F 275	275	285	260	280	270	285	280	255	265	245	250	U S 255	255	265	260	260	270	280	280	265	265	255
25	255	250	255	255	255	280	280	285	U H 270	320	255	260	255	255	260	255	255	260	260	255	270	270	260	U S 265
26	245	250	255	265	255	260	U S 270	G	G	230	F 250	U F 255	215	225	240	240	250	250	U S 270	260	F 260	U F 260	280	270
27	260	250	F 250	F 265	F 270	225	F	U F 250	280	270	270	270	260	260	265	265	270	265	280	275	270	265	275	280
28	275	275	280	F 270	F 280	U F 290	295	295	280	280	270	270	270	265	265	270	275	275	275	285	275	275	270	275
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31	250	250	255	265	265	290	290	265	260	255	230	240	240	230	240	250	265	265	270	270	270	U F 270	F 270	270
MED	260	250	260	260	265	280	290	275	275	260	260	260	255	250	255	260	260	265	270	275	270	265	260	260
NO	30	31	31	31	31	31	30	31	31	31	30	31	30	31	30	30	30	30	31	31	30	30	30	31

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

TABLE 84

IONOSPHERIC DATA

(M3000)F1, May 1957
Station WASHINGTON Lat. 38.7N Long. 77.1W Sweep 1.0 Mc to 25.0 Mc in 13.5 Sec. 75.0W Mean Time
Manual ☐ Automatic ☒

	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23
01							L	330	U L 340	U S 350	335	B	B	B	U R 340	325	345	L	L					
02							L	L	L	L	H 370	H 350	U H 340	H 350	U L 340	U H 340	345	L						
03							L	L	330	330	350	H 350	H 310	H 350	345	340	H 330	325	L					
04								L	U L 320	340	U S 335	335	340	350	360	H 340	330	340	L					
05							L	H 325	H 350	H 350	H 350	U S 360	H 360	U S 365	H 350	H 340	330	320	L					
06							L	L	H 335	U L 345	340	H 330	340	350	H 335	H 350	H 330	L	L					
07									L	L	350	360	H 330	330	H 340	340	L	L	L					
08							L	L		330	H 340	330	325	340	330	330	L	L	L					
09								L	H 350	340	U L 335	330	345	325	325	H 335	H 335	335	L					
10							L	L	U L 340	U L 320	320	330	H 345	345	H 320	335	335	L	L					
11							L	L	330	350	345	350	350	330	345	335	325	325	L					
12							L	340	330	H 335	360	H 345	335	H 340	H 320	325	330	L	L					
13						L	L	L	L	335	H 335	325	345	330	U H 325	H 330	325	L	L					
14							L	L	330	360	350	350	H 340	350	340	335	330	U L 320	A					
15							L	L	U L 350	325	H 330	320	340	330	315	H 325	330	L	L					
16							L	U L 340	330	340	340	U H 350	H 360	350	360	H 350	315	U L 315	L					
17							L	H 355	L	H 365	325	H 340	330	330	355	330	340	L	A					
18								340	350	H 320	330	350	H 350	350	H 340	350	320	325	L					
19						L	L	U L 350	H 340	U H 335	U H 360	U R 355	H 345	325	345	U S 335	330	L	L					
20						L	L	H 305	A	H 340	360	365	320	300	C	330	340	U L 310	L					
21							355	L	L	L	L	320	H 315	330	H 330	H 325	U L 325	A	L					
22							L	H	U L 310	U S 360	350	350	H 380	U R 350	A	A	A	A	A					
23						L	L	L	U R 340	H 370	H 380	360	345	H 340	320	320	U L 330	L	L					
24							L	L	L	H 340	L	L	H 310	H 330	H 330	330	H 360	L	L					
25							L	L	H 350	H 370	340	325	H 340	330	H 340	U H 315	H 335	340	L					
26							U F 310	340	370	U H 350	360	360	370	U R 360	355	340	340	330	L					
27							F 340	330	L	H 310	L	340	345	H 340	325	H 325	330	L	L					
28							L	L	L	L	330	330	345	345	360	350	340	345	L					
29							L	L	L	340	L	L	350	350	340	L	L	L	L					
30							310	350	F 350	350	325	330	345	325	H 325	H 320	H 335	330	L					
31							L	H 310	340	H 345	U R 355	H 325	355	U R 360	H 360	U R 340	H 330	315	L					
MED								340	340	340	340	340	345	340	340	335	330	325						
NO							4	12	20	27	27	28	30	30	29	29	27	14						

CENTRAL RADIO PROPAGATION LABORATORY, NATIONAL BUREAU OF STANDARDS, BOULDER, COLO.

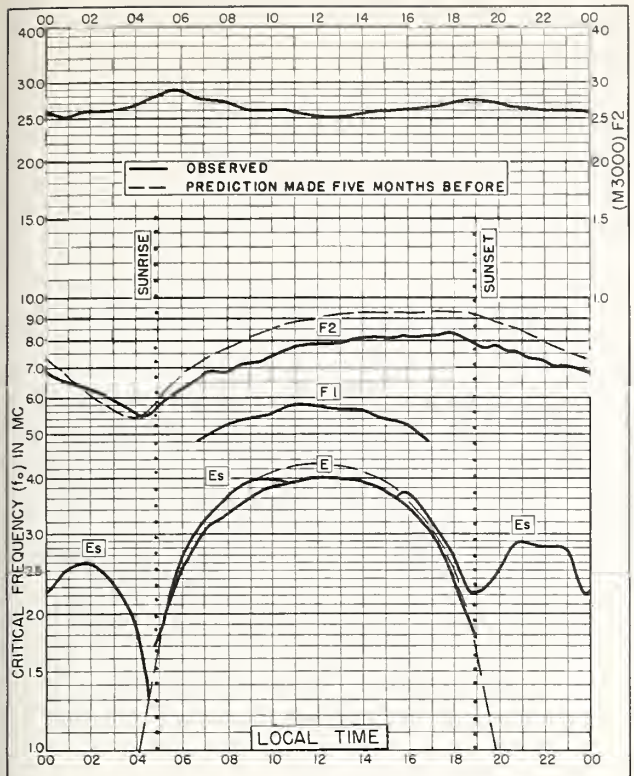


Fig. 1. WASHINGTON, D.C.
38.7°N, 77.1°W MAY 1957

NBS 503

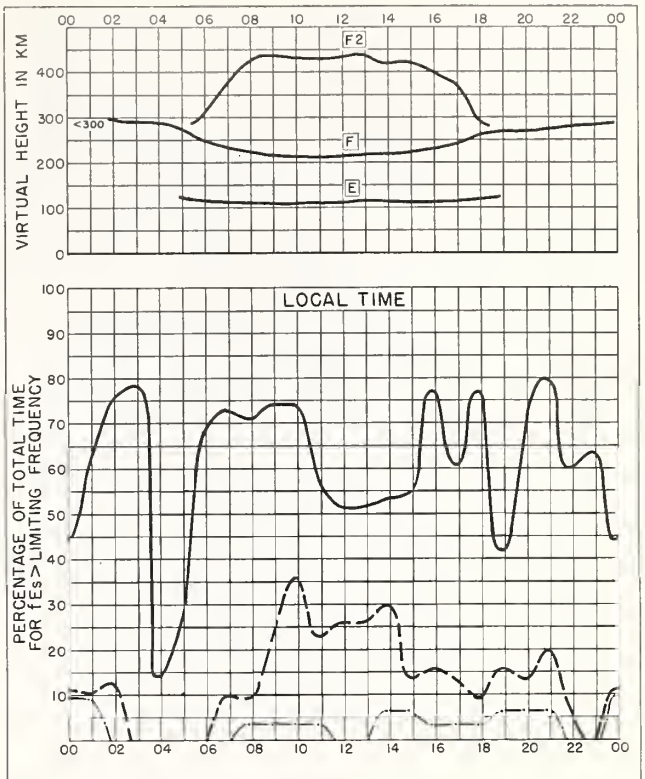


Fig. 2. WASHINGTON, D.C. MAY 1957

NBS 490

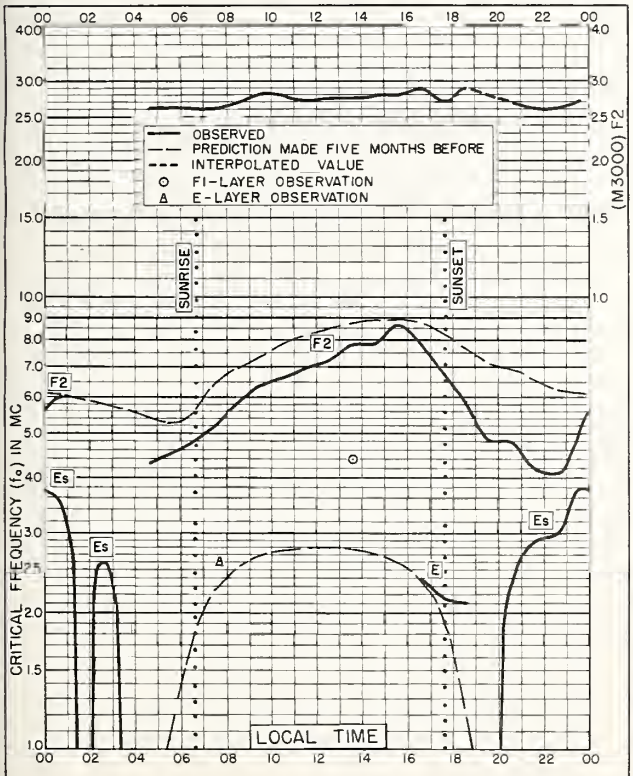


Fig. 3. POINT BARROW, ALASKA
71.3°N, 156.8°W MARCH 1957

NBS 503

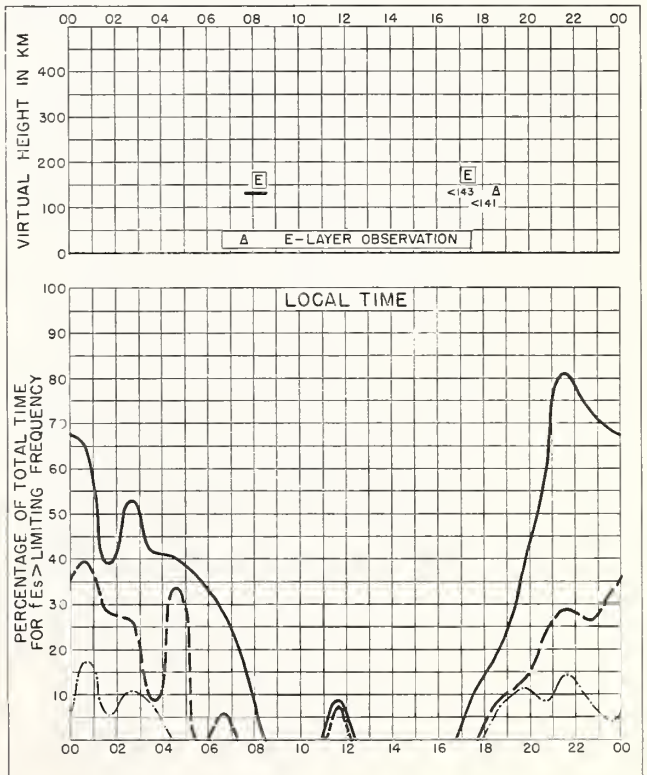


Fig. 4. POINT BARROW, ALASKA MARCH 1957

NBS 490

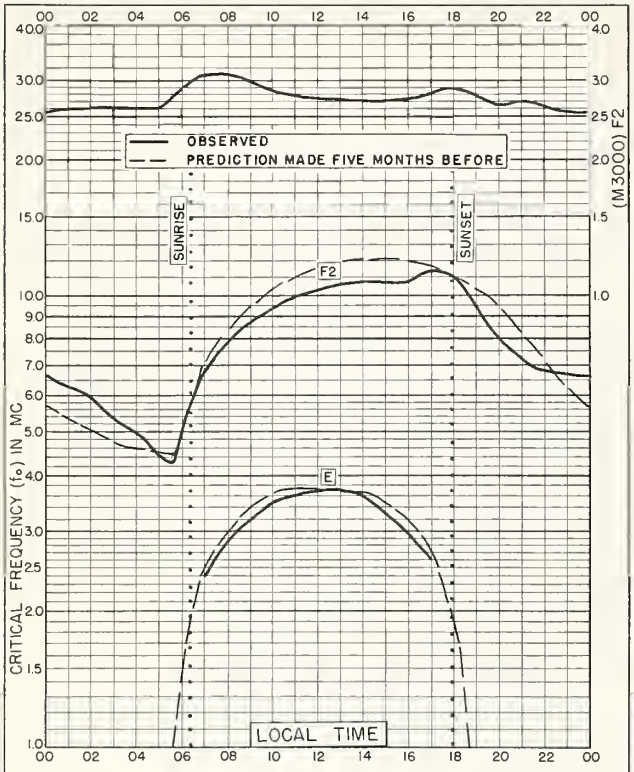


Fig. 5. ST. JOHN S , NEWFOUNDLAND
47.6°N , 52.7°W MARCH 1957

NBS 503

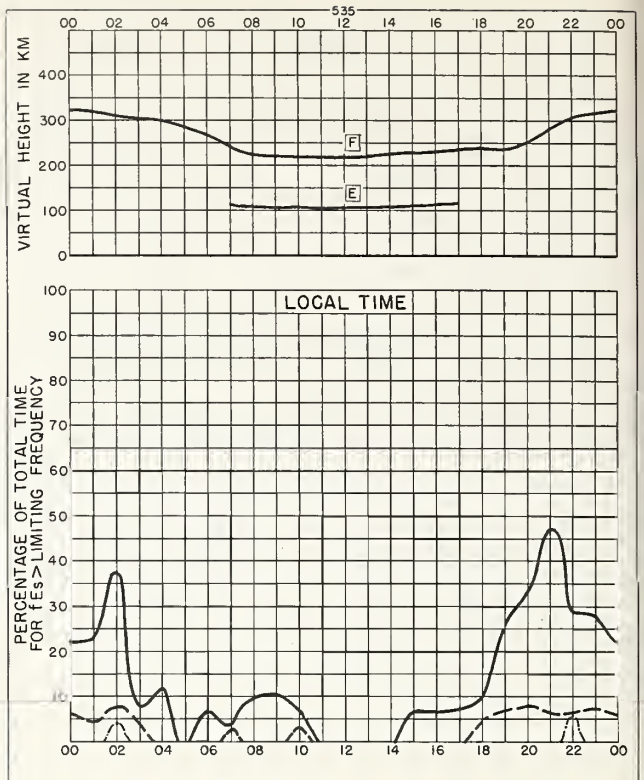


Fig. 6. ST. JOHN S , NEWFOUNDLAND
MARCH 1957

NBS 490

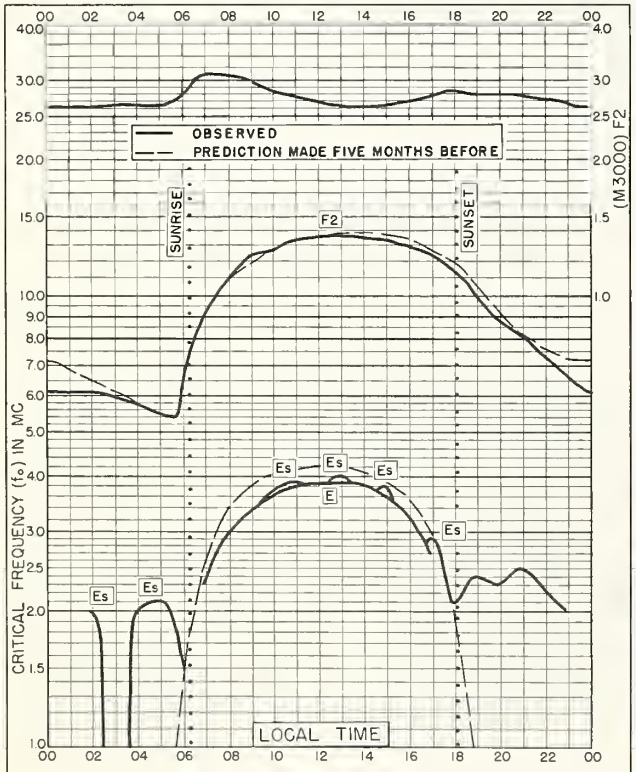


Fig. 7. WHITE SANDS, NEW MEXICO
32.3°N, 106.5°W MARCH 1957

NBS 503

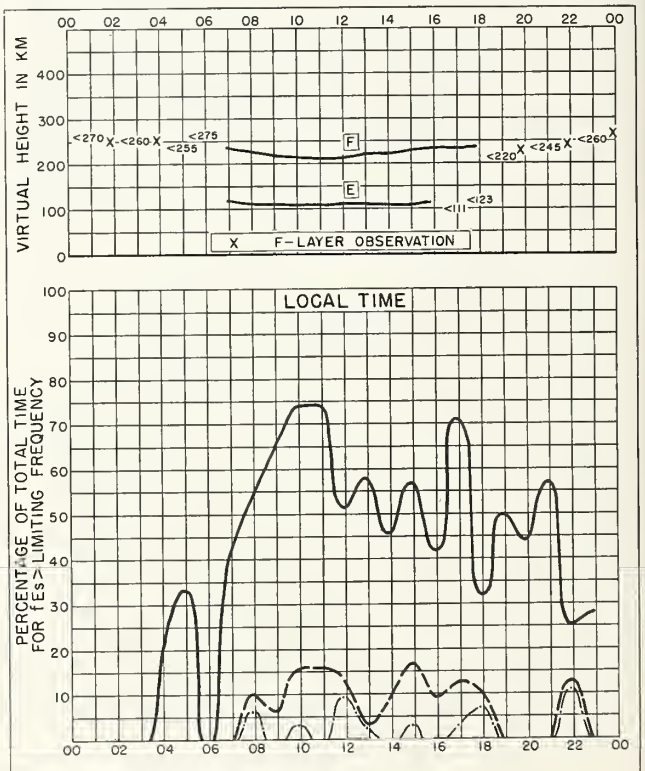


Fig. 8. WHITE SANDS, NEW MEXICO
MARCH 1957

NBS 490

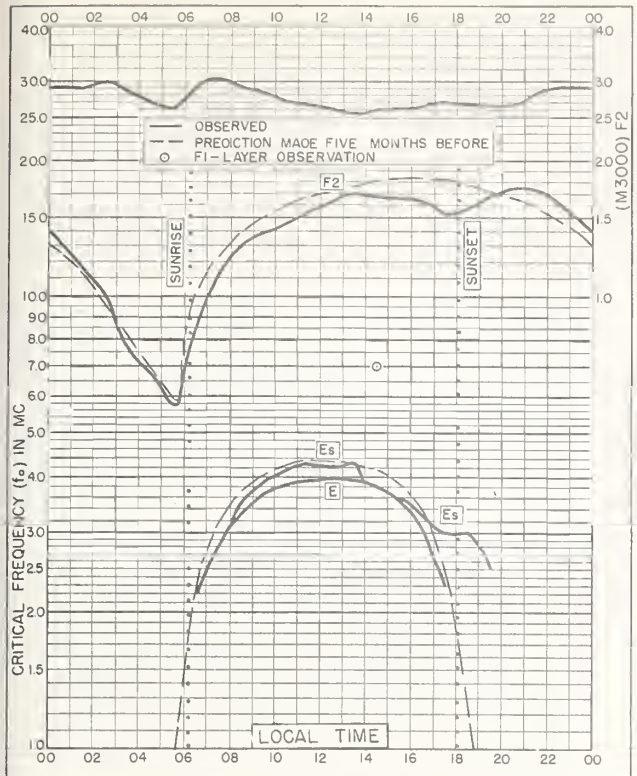


Fig. 9. OKINAWA I.
26.3°N, 127.8°E
MARCH 1957

NBS 503

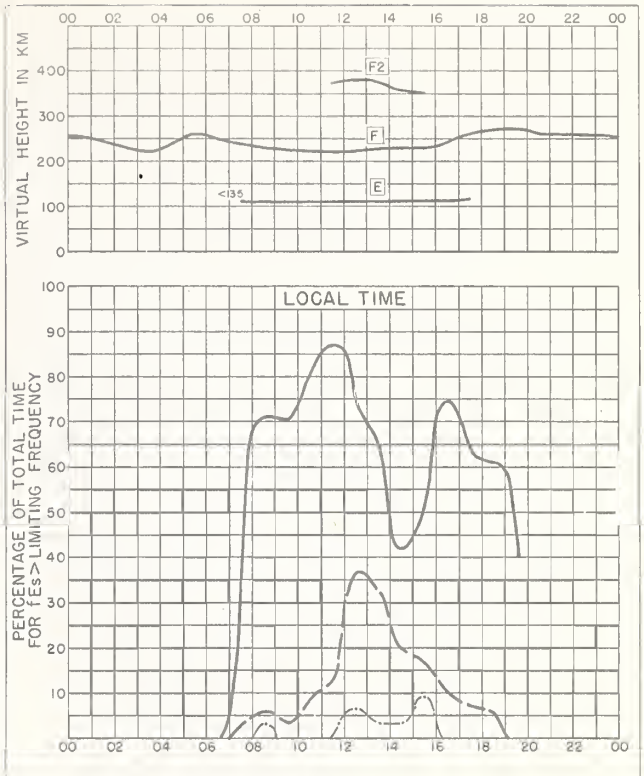


Fig. 10. OKINAWA I.
MARCH 1957

NBS 490

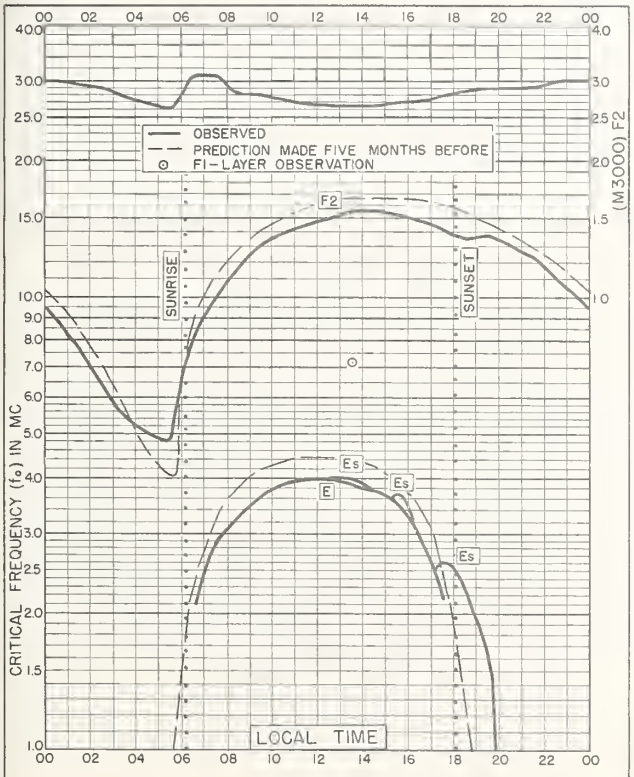


Fig. 11. MAUI, HAWAII
20.8°N, 156.5°W
MARCH 1957

NBS 503

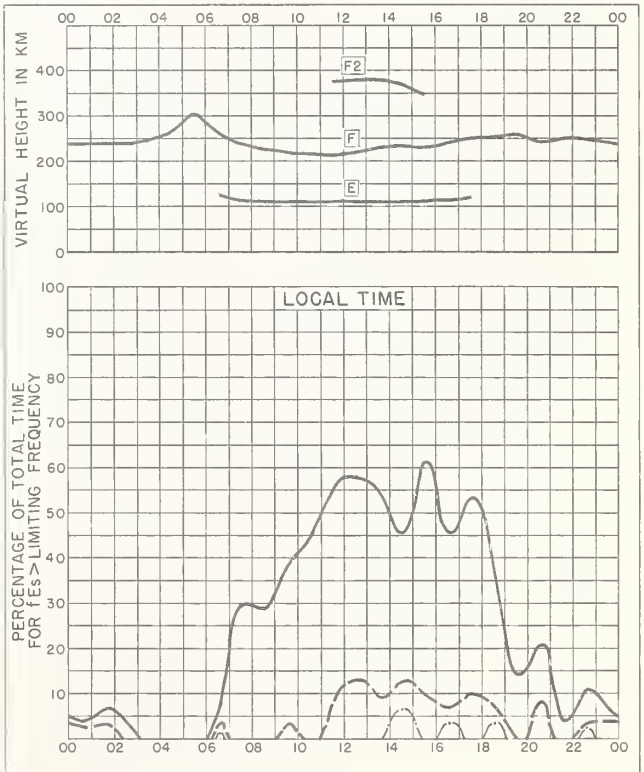


Fig. 12. MAUI, HAWAII
MARCH 1957

NBS 490

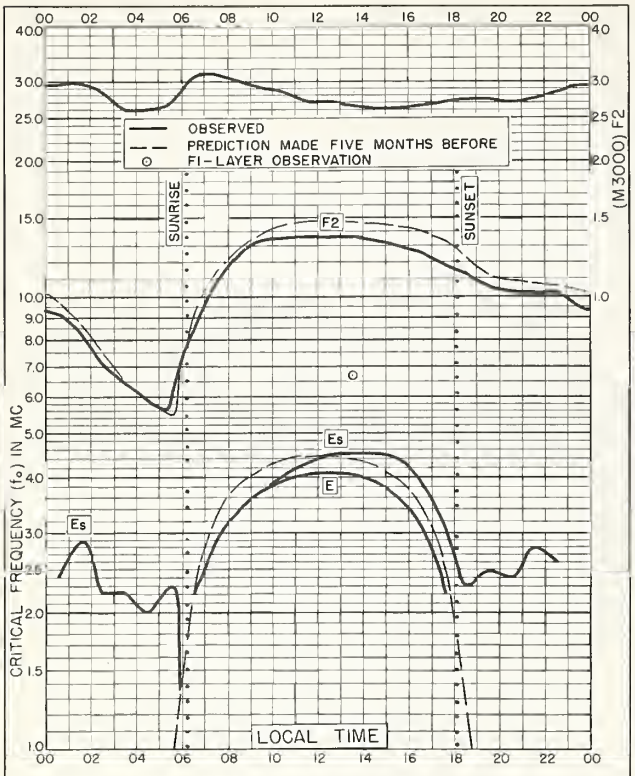


Fig. 13. PUERTO RICO, W. I.
18.5°N, 67.2°W MARCH 1957

NBS 503

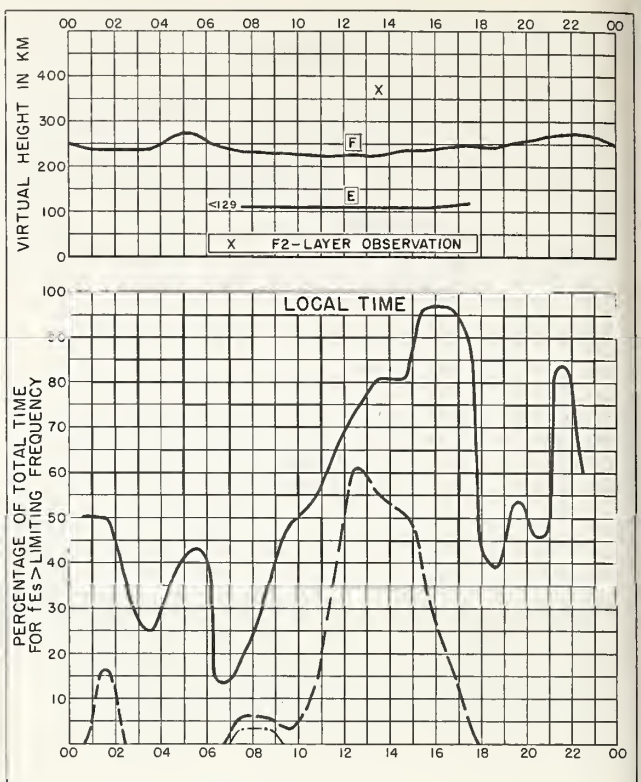


Fig. 14. PUERTO RICO, W. I. MARCH 1957

NBS 490

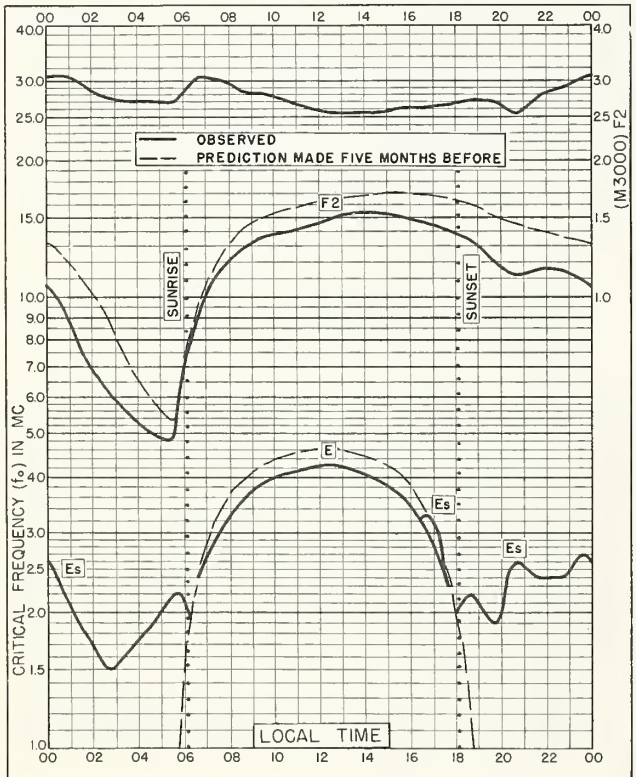


Fig. 15. PANAMA CANAL ZONE
9.4°N, 79.9°W MARCH 1957

NBS 503

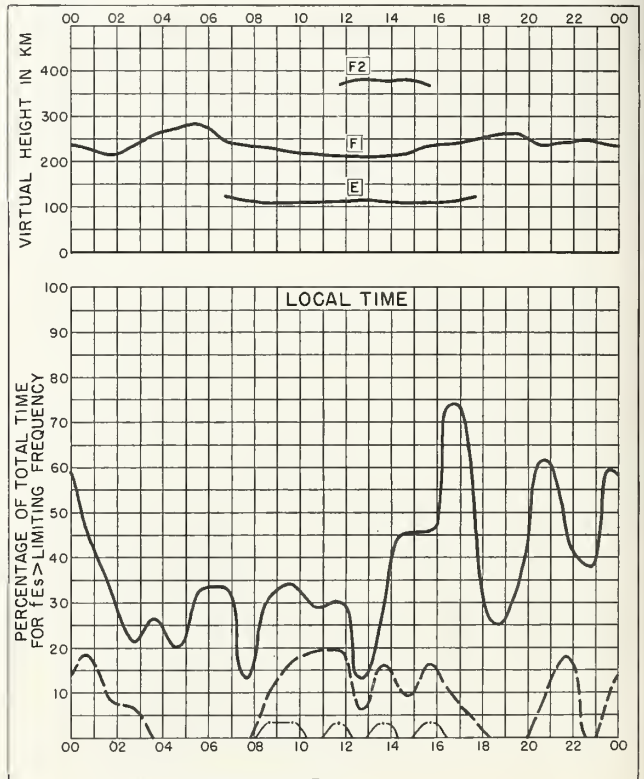


Fig. 16. PANAMA CANAL ZONE MARCH 1957

NBS 490

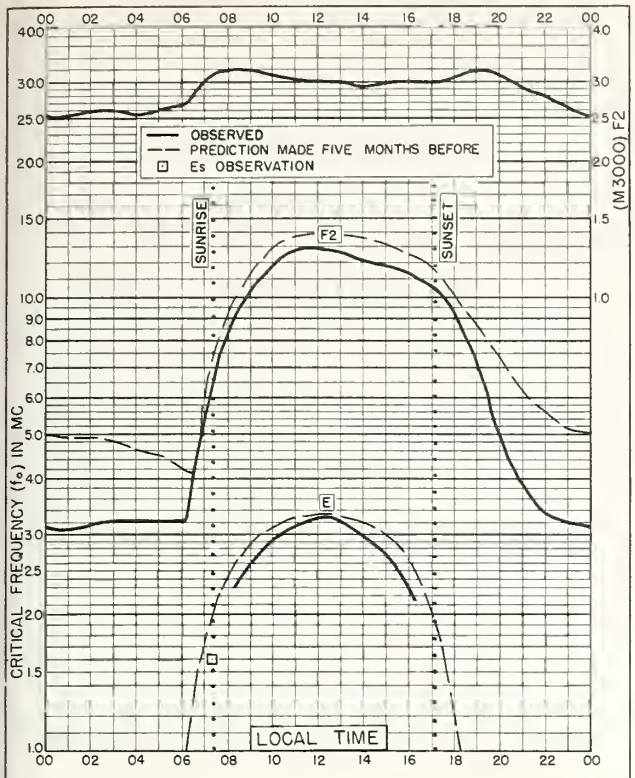


Fig. 17. ADAK, ALASKA
51.9°N, 176.6°W FEBRUARY 1957

NBS 503

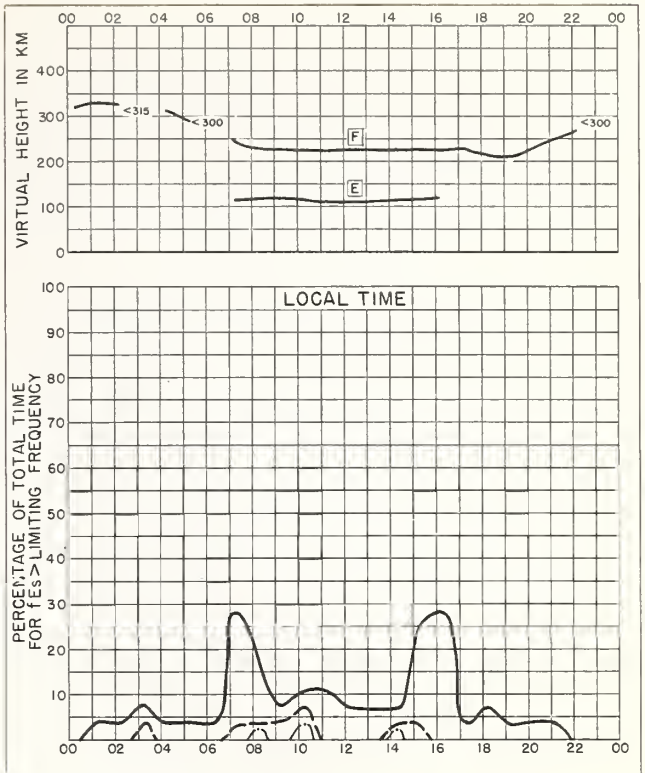


Fig. 18. ADAK, ALASKA FEBRUARY 1957

NBS 490

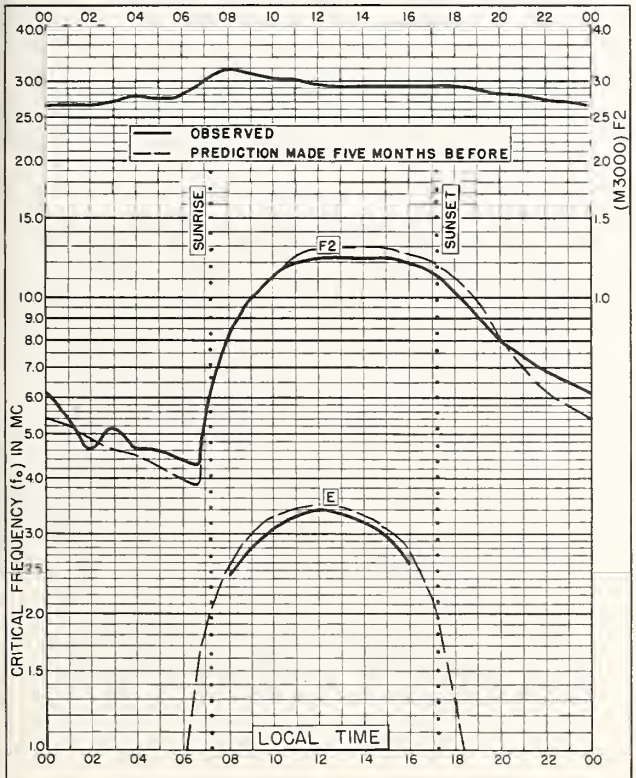


Fig. 19. ST. JOHN S, NEWFOUNDLAND
47.6°N, 52.7°W FEBRUARY 1957

NBS 503

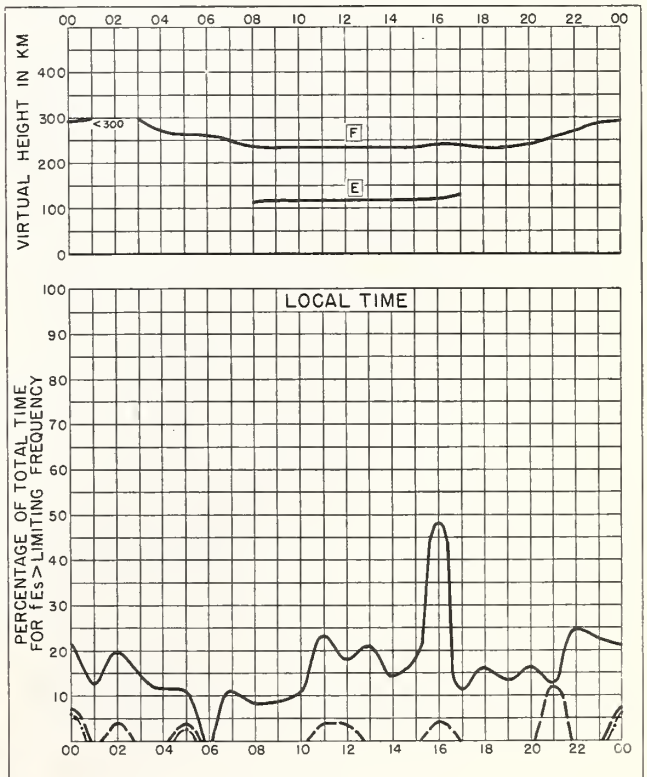


Fig. 20. ST. JOHN S, NEWFOUNDLAND FEBRUARY 1957

NBS 490

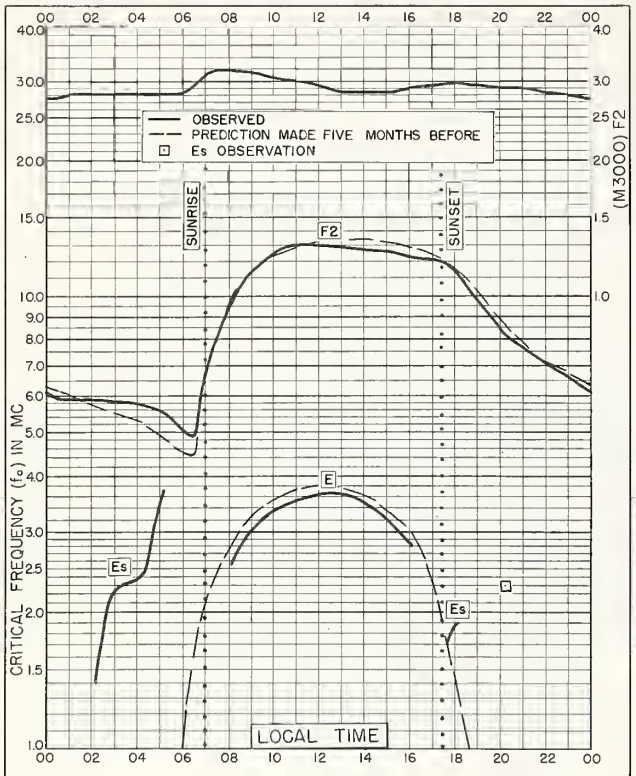


Fig. 21. FT. MONMOUTH, NEW JERSEY
40.3°N, 74.1°W FEBRUARY 1957

NBS 503

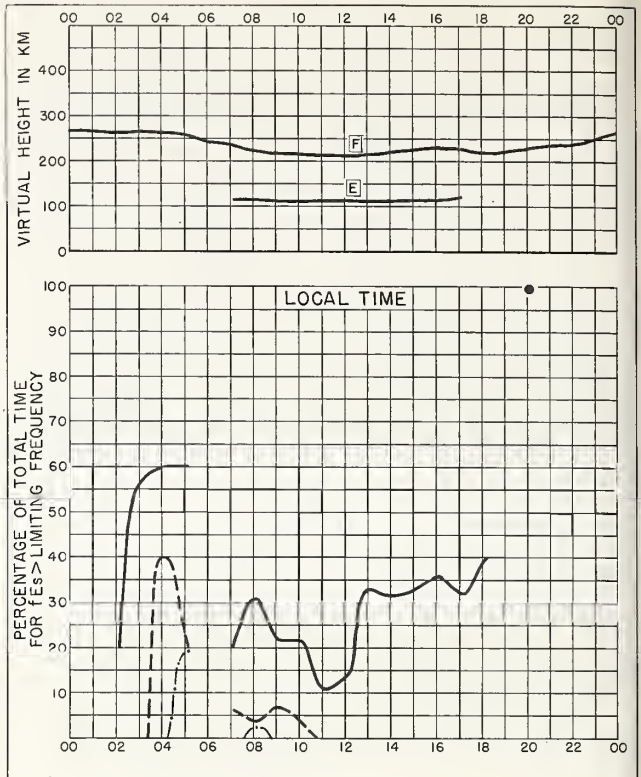


Fig. 22. FT. MONMOUTH, NEW JERSEY FEBRUARY 1957

NBS 490

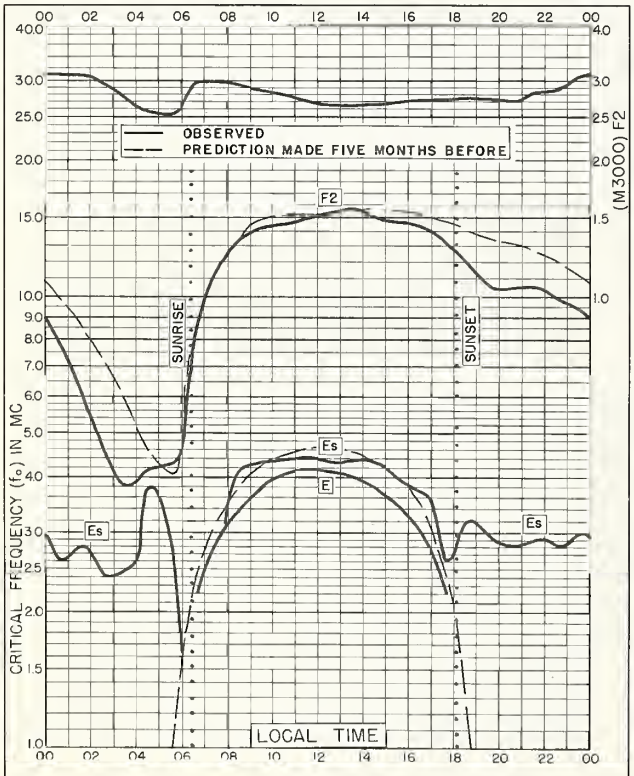


Fig. 23. PANAMA CANAL ZONE
9.4°N, 79.9°W FEBRUARY 1957

NBS 503

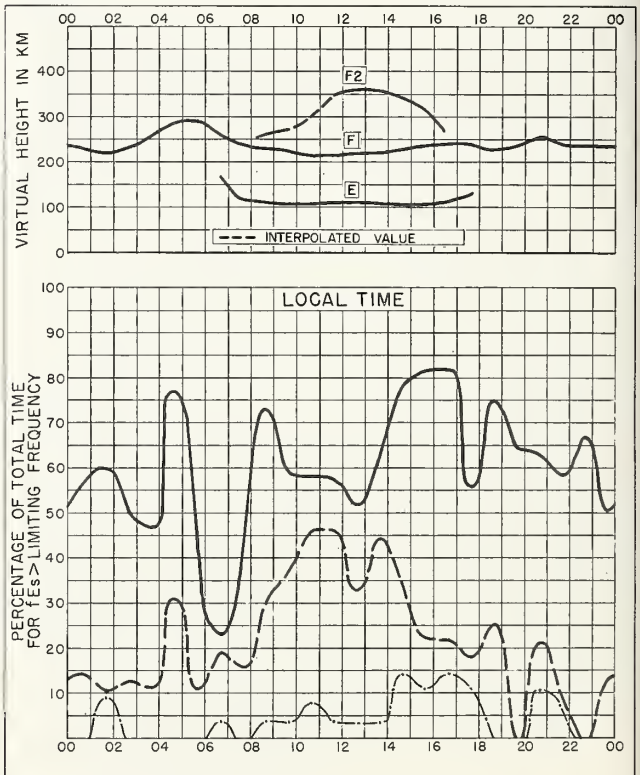


Fig. 24. PANAMA CANAL ZONE FEBRUARY 1957

NBS 490

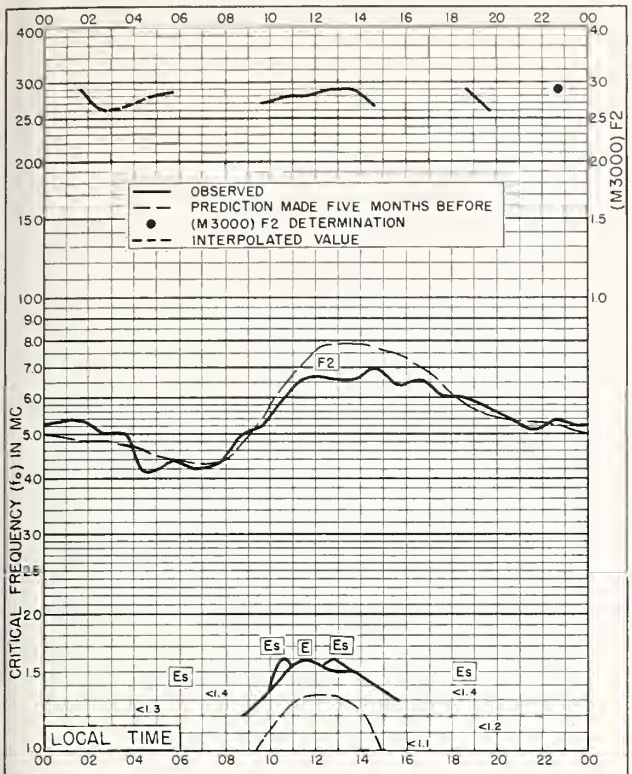


Fig. 25. RESOLUTE BAY, CANADA
74.7°N, 94.9°W JANUARY 1957

NBS 503

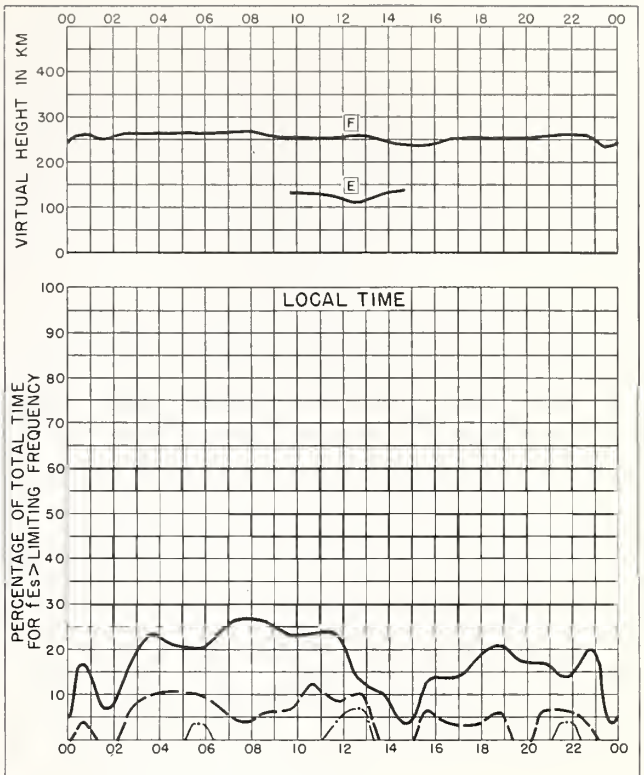


Fig. 26. RESOLUTE BAY, CANADA JANUARY 1957

NBS 490

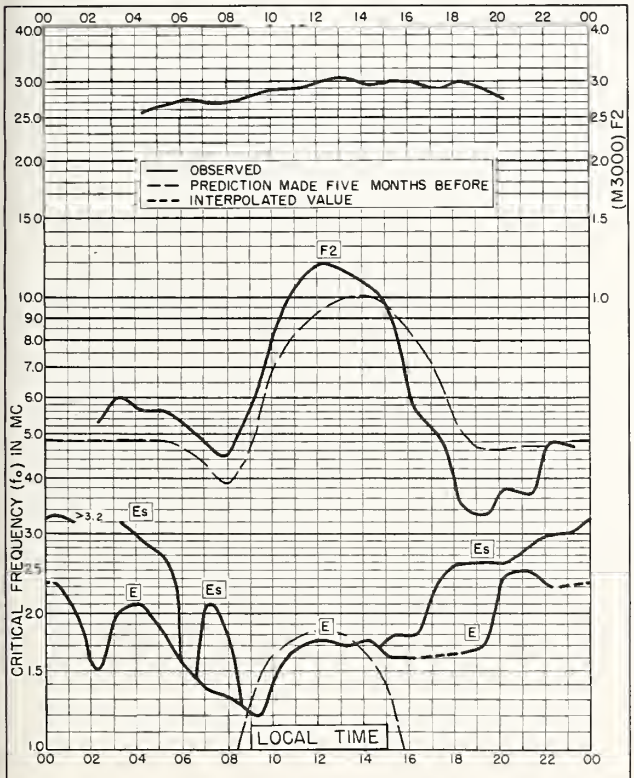


Fig. 27. TROMSO, NORWAY
69.7°N, 19.0°E JANUARY 1957

NBS 503

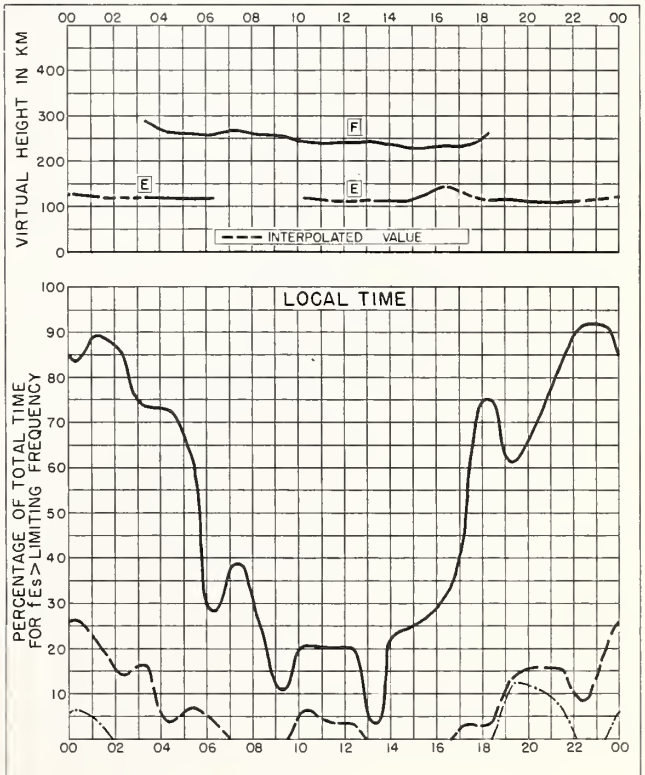


Fig. 28. TROMSO, NORWAY JANUARY 1957

NBS 490

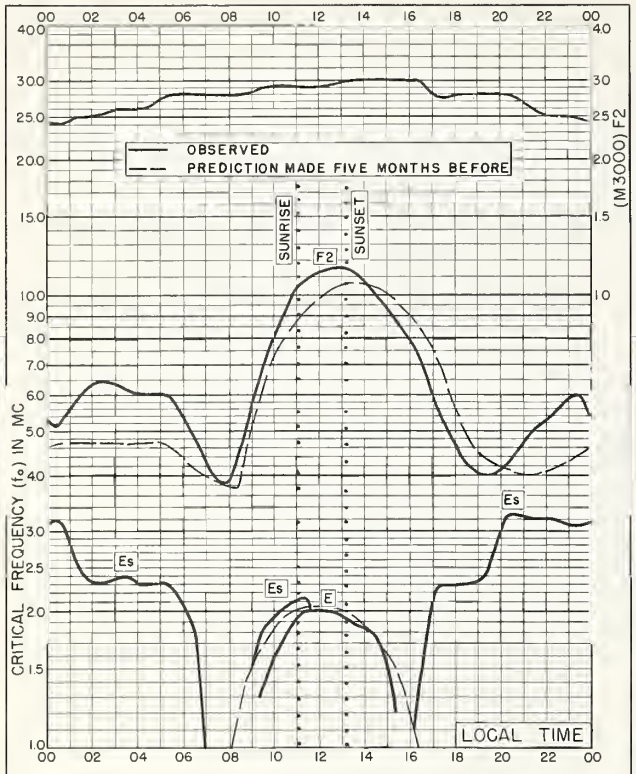


Fig. 29. KIRUNA, SWEDEN
67.8°N, 20.3°E JANUARY 1957

NBS 503

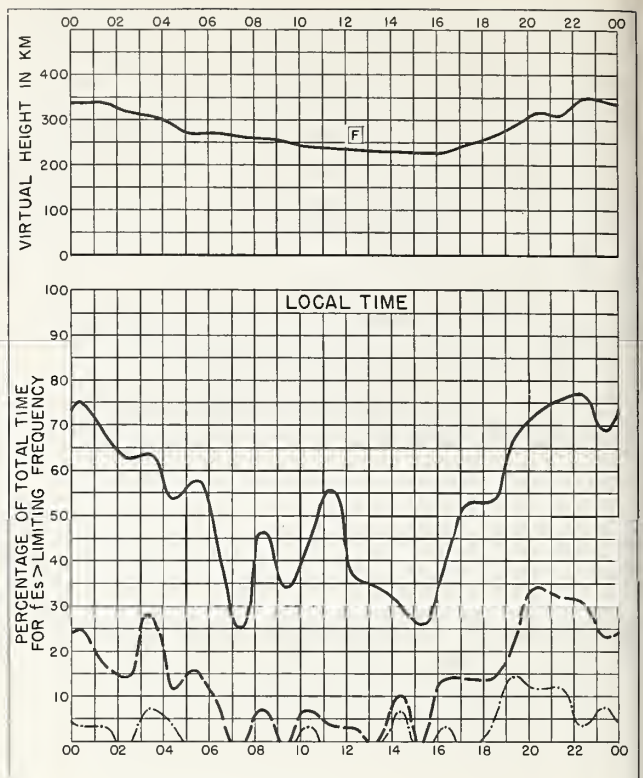


Fig. 30. KIRUNA, SWEDEN JANUARY 1957

NBS 490

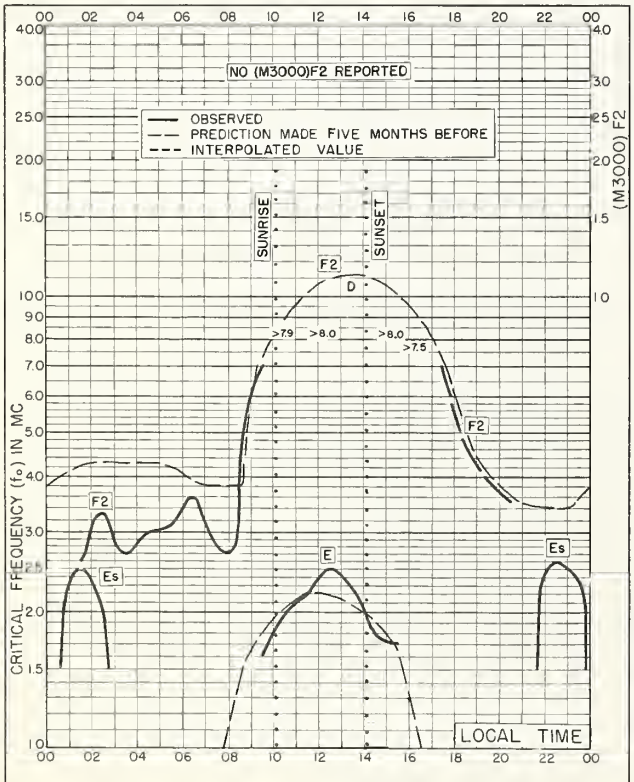


Fig. 31. LULEA, SWEDEN
65.6°N, 22.1°E JANUARY 1957

NBS 503

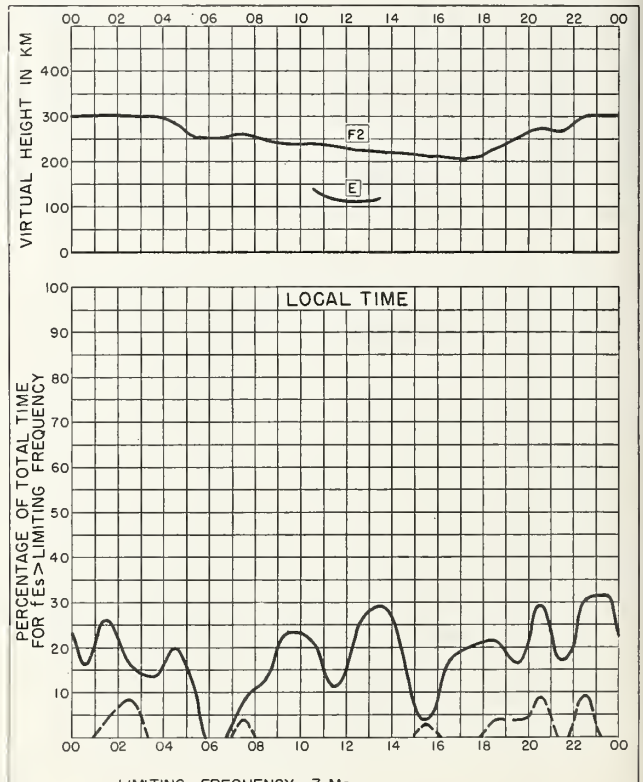


Fig. 32. LULEA, SWEDEN JANUARY 1957

NBS 490

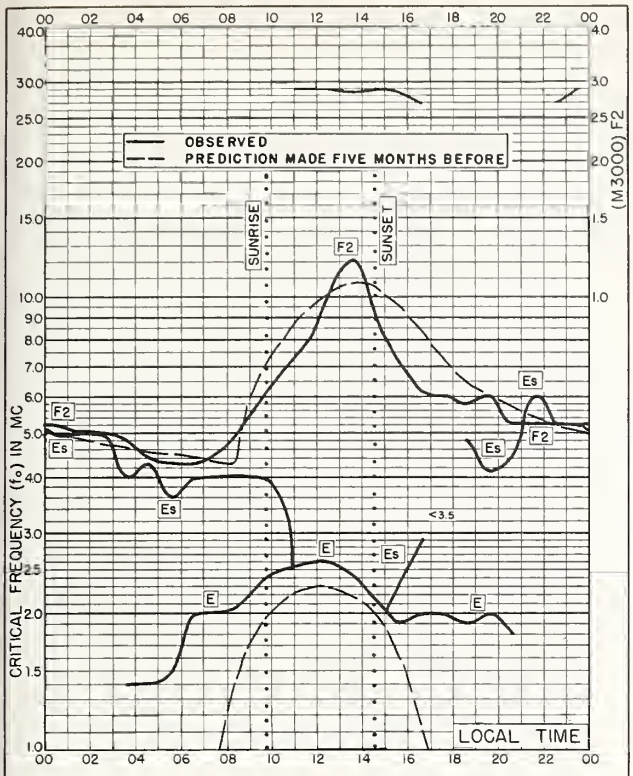


Fig. 33. BAKER LAKE, CANADA
64.3°N, 96.0°W JANUARY 1957

NBS 503

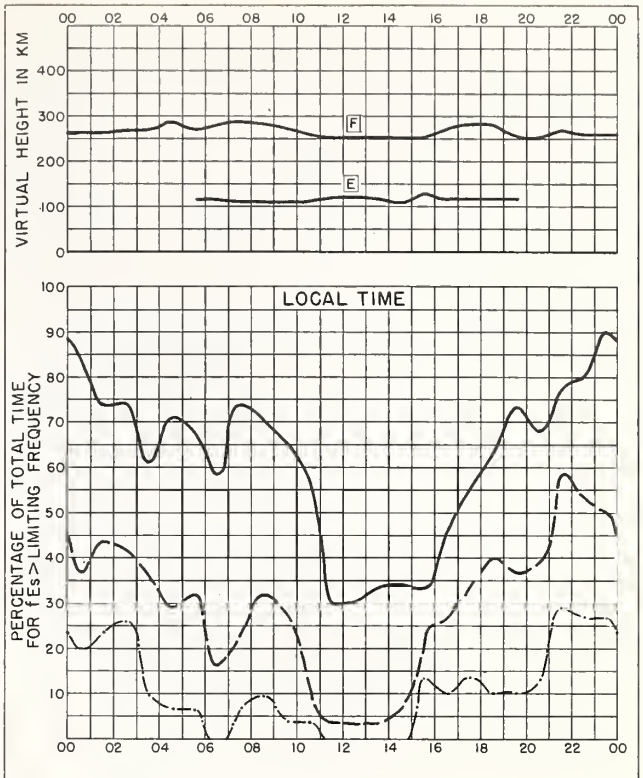


Fig. 34. BAKER LAKE, CANADA JANUARY 1957

NBS 490

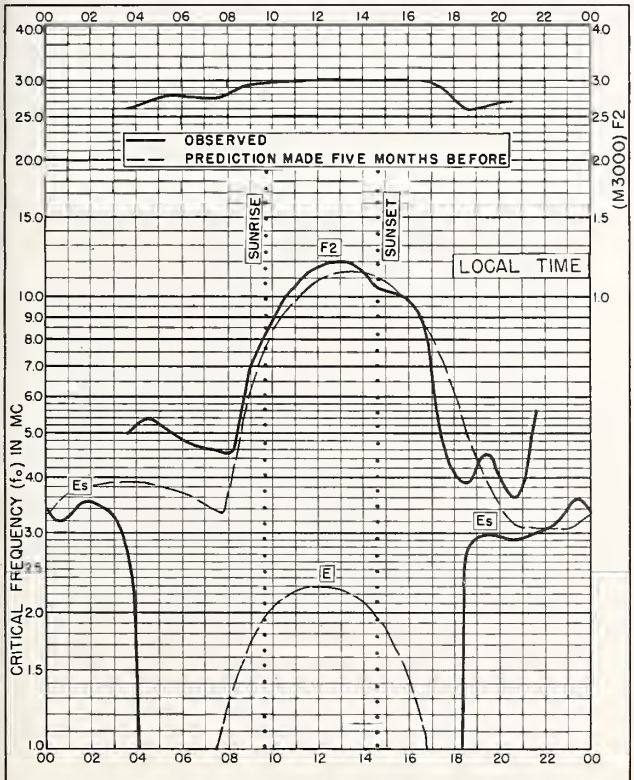


Fig. 35. REYKJAVIK, ICELAND
64.1°N, 21.8°W JANUARY 1957

NBS 503

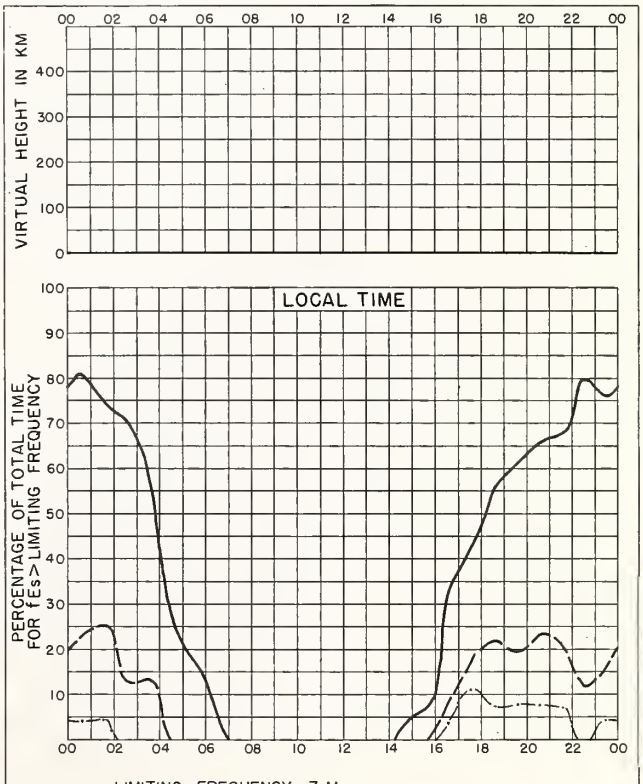


Fig. 36. REYKJAVIK, ICELAND JANUARY 1957

NBS 490

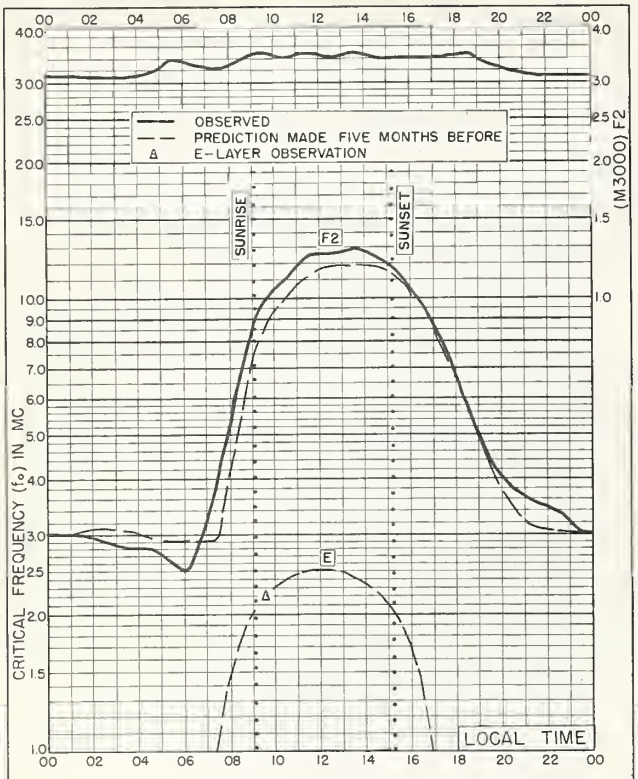


Fig. 37. NURMIJARVI, FINLAND
60.5°N, 24.6°E JANUARY 1957

NBS 503

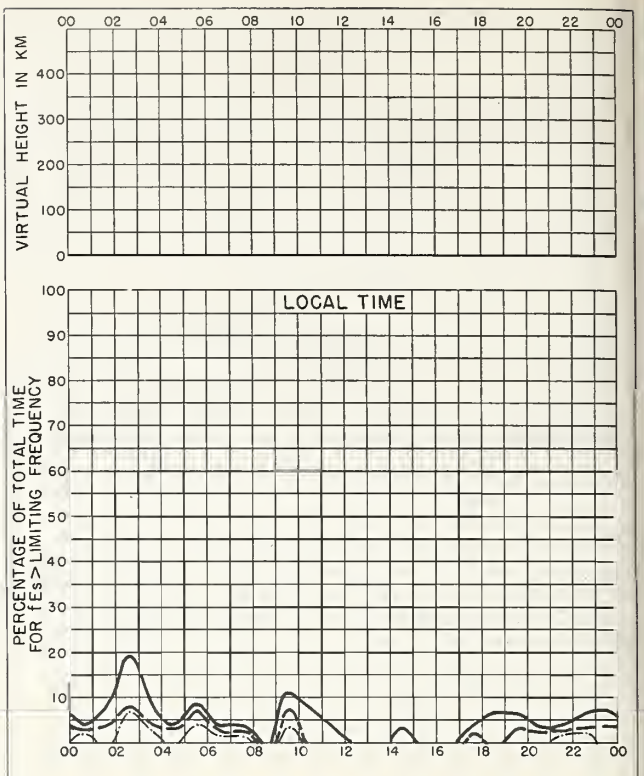


Fig. 38. NURMIJARVI, FINLAND JANUARY 1957

NBS 490

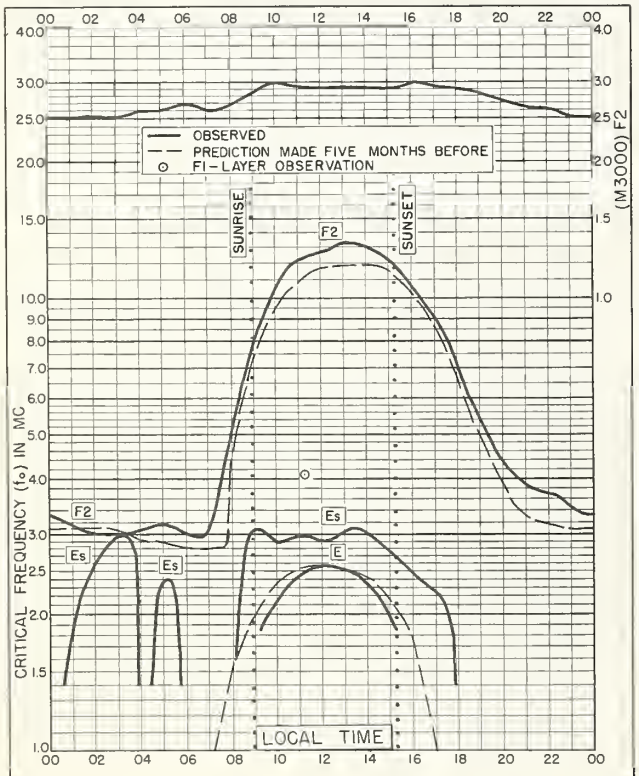


Fig. 39. UPSALA, SWEDEN
59.8°N, 17.6°E JANUARY 1957

NBS 503

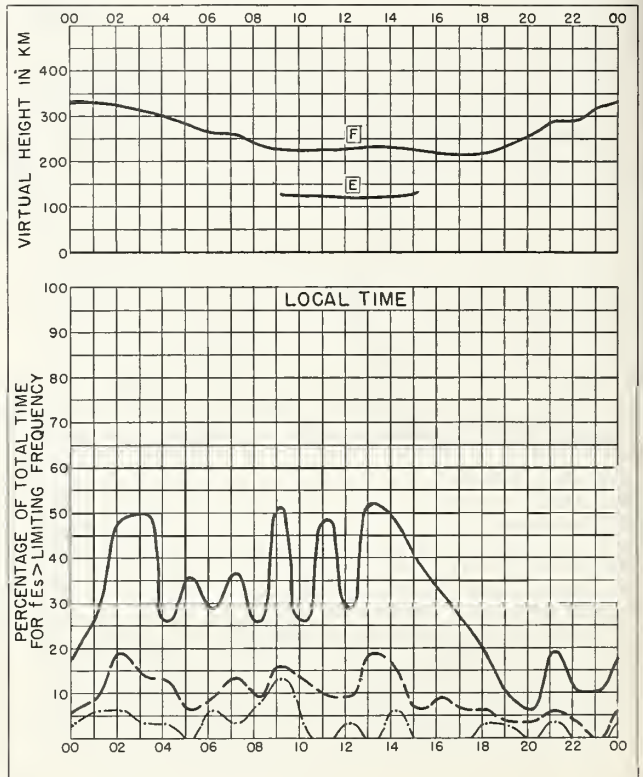


Fig. 40. UPSALA, SWEDEN JANUARY 1957

NBS 490

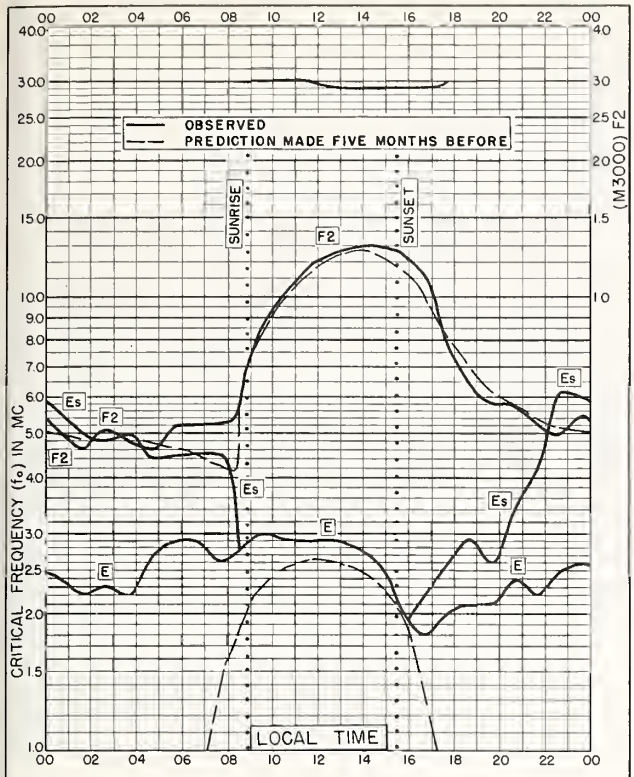


Fig. 41. CHURCHILL, CANADA
58.8°N, 94.2°W JANUARY 1957

NBS 503

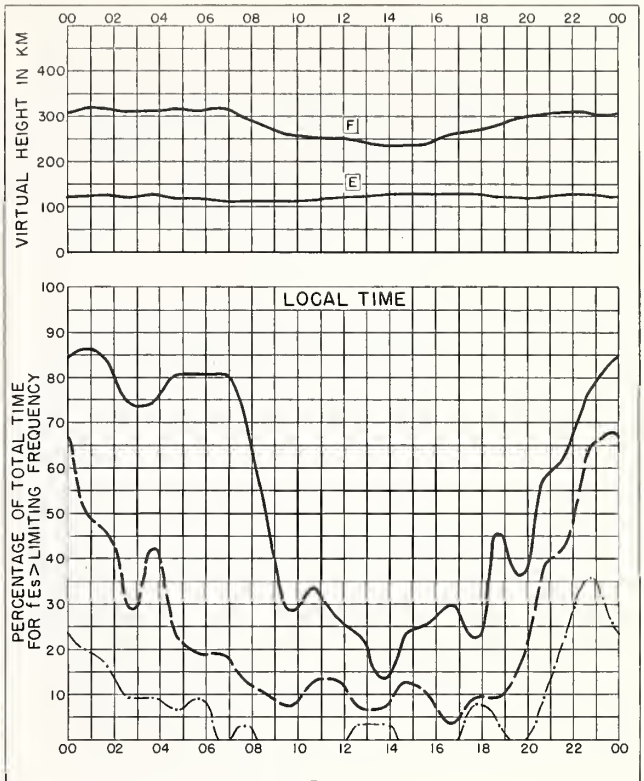


Fig. 42. CHURCHILL, CANADA JANUARY 1957

NBS 490

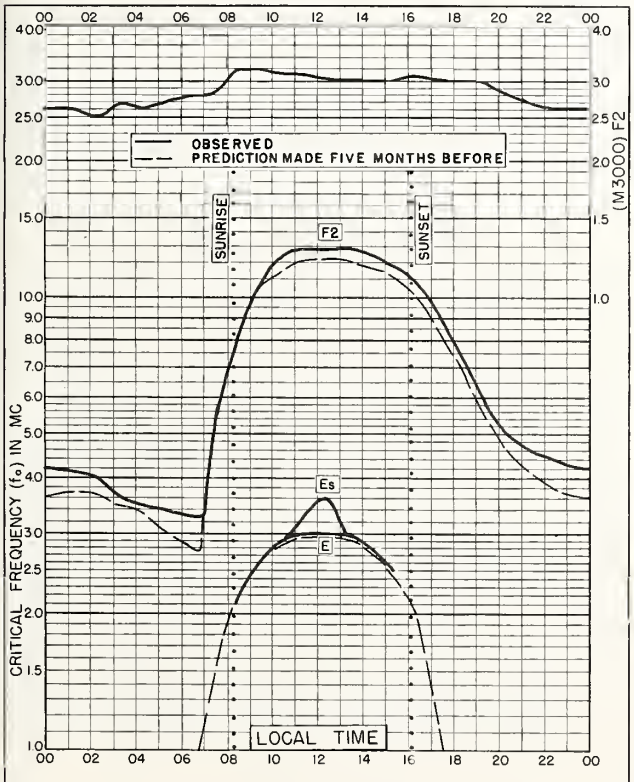


Fig. 43. De BILT, HOLLAND
52.1°N, 5.2°E JANUARY 1957

NBS 503

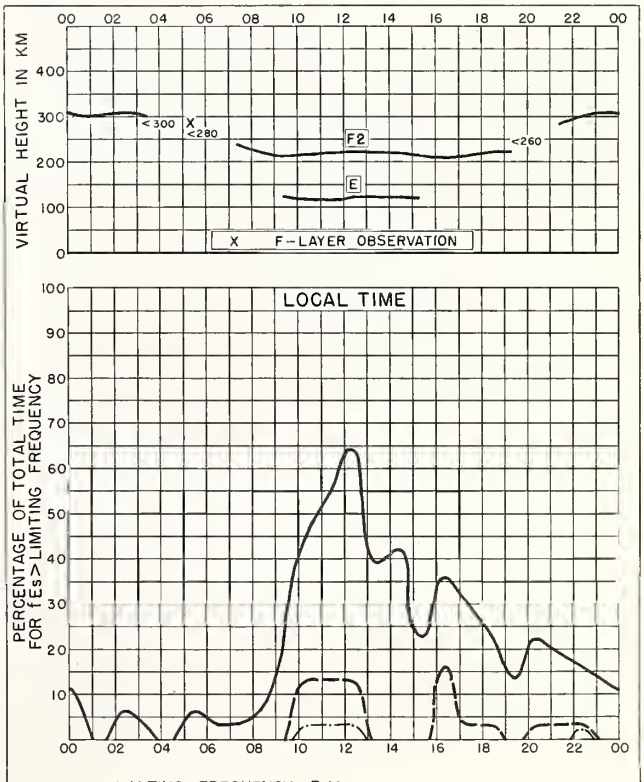


Fig. 44. De BILT, HOLLAND JANUARY 1957

NBS 490

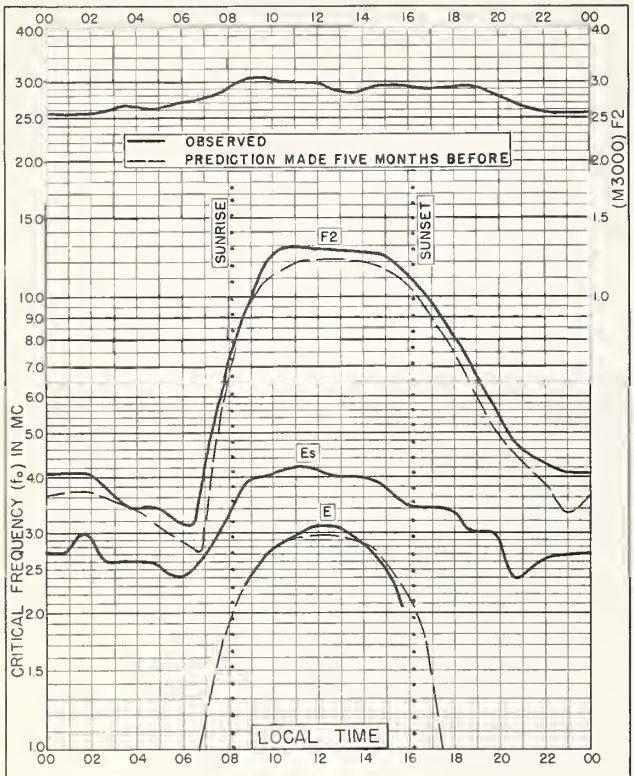


Fig. 45. LINDAU/HARZ, GERMANY
51.6°N, 10.1°E JANUARY 1957

NBS 503

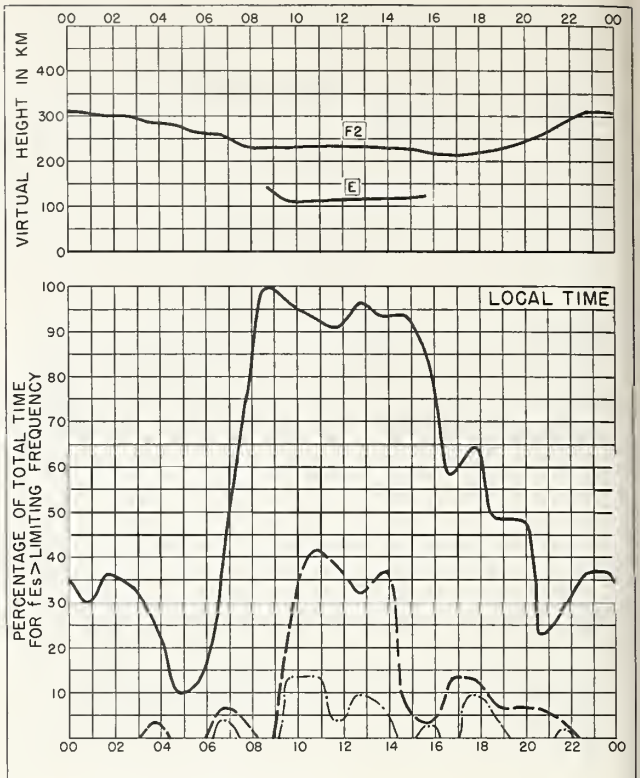


Fig. 46. LINDAU/HARZ, GERMANY JANUARY 1957

NBS 490

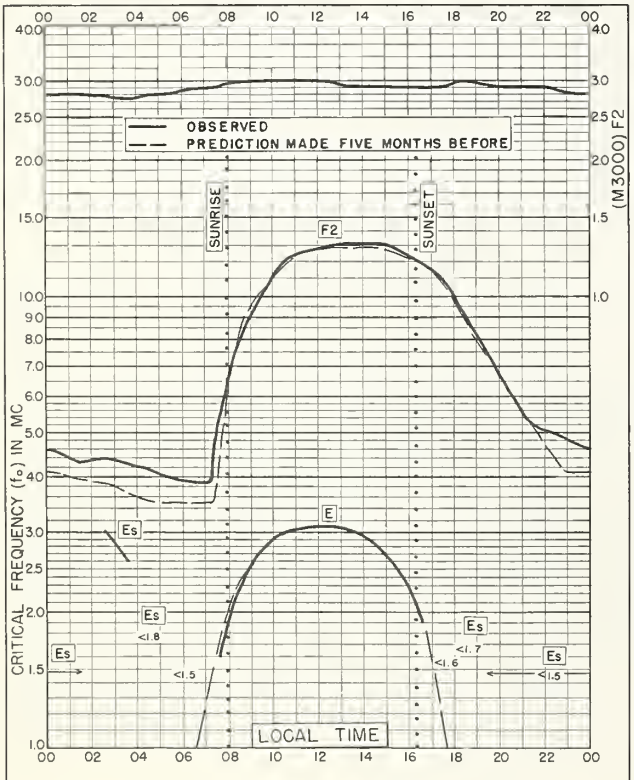


Fig. 47. WINNIPEG, CANADA
49.9°N, 97.4°W JANUARY 1957

NBS 503

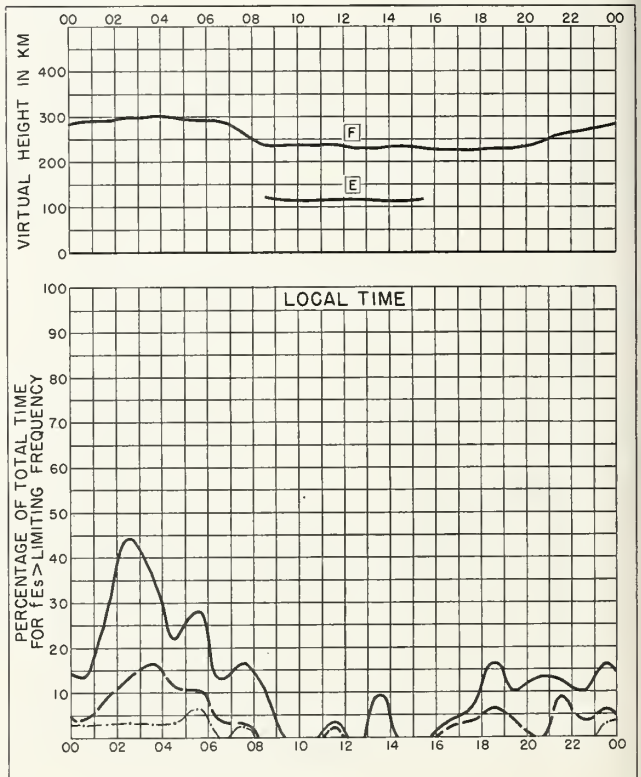


Fig. 48. WINNIPEG, CANADA JANUARY 1957

NBS 490

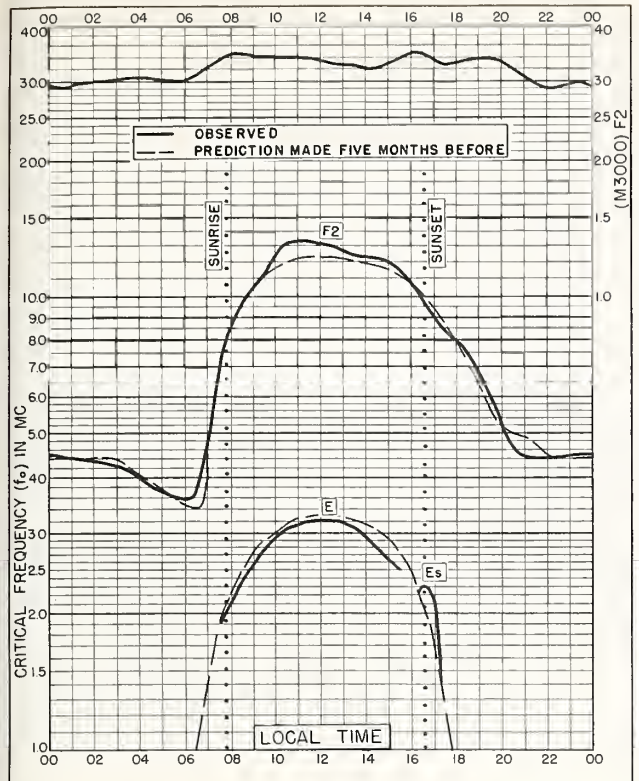
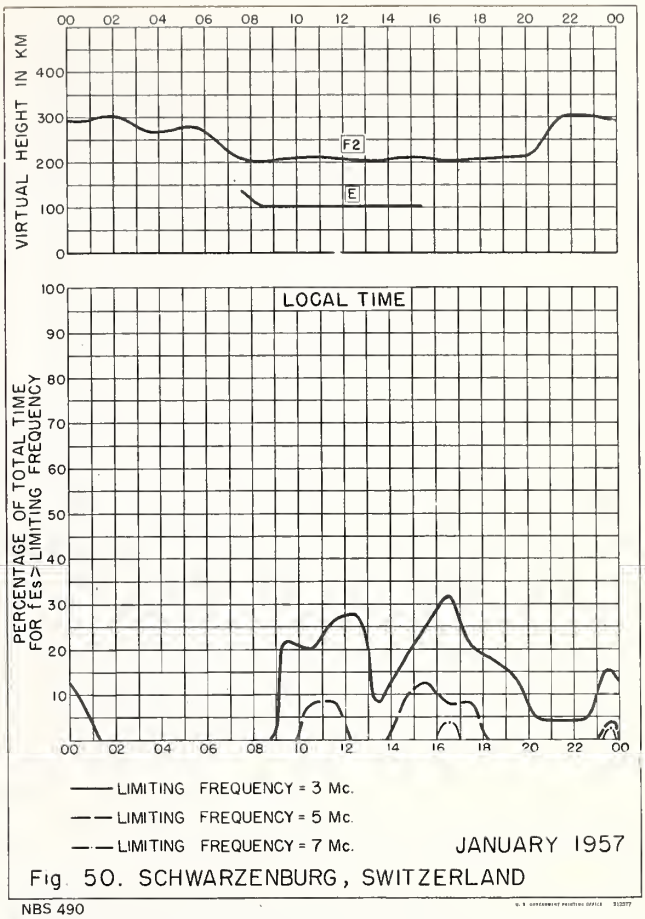


Fig. 49. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E JANUARY 1957

NBS 503



JANUARY 1957

Fig. 50. SCHWARZENBURG, SWITZERLAND

NBS 490

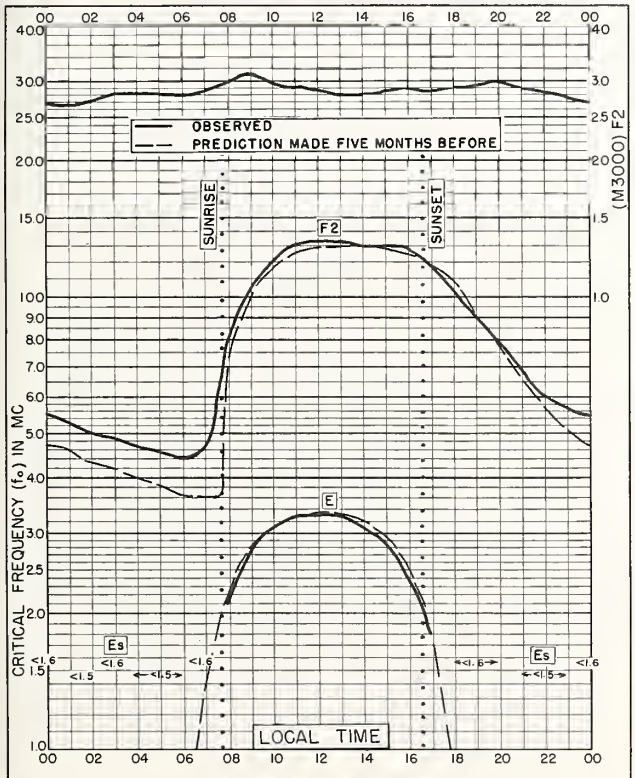


Fig. 51. OTTAWA, CANADA
45.4°N, 75.9°W JANUARY 1957

NBS 503

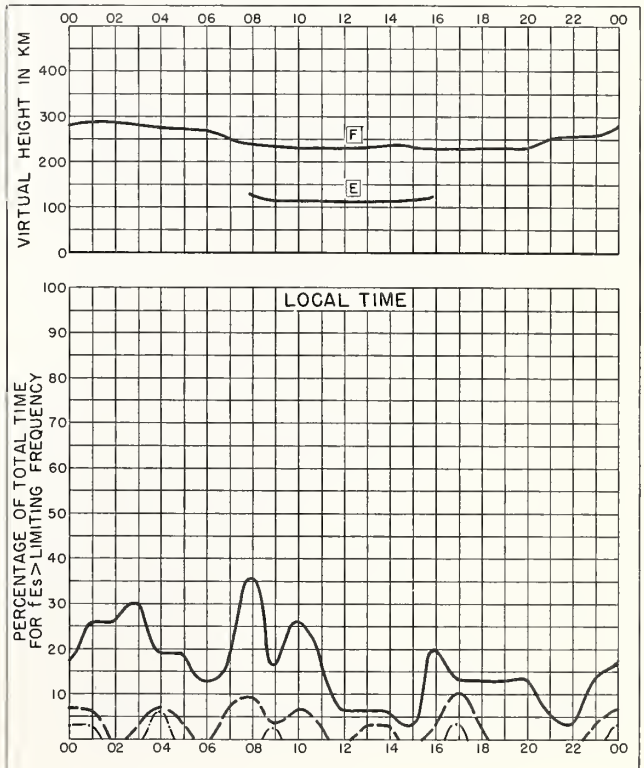


Fig. 52. OTTAWA, CANADA JANUARY 1957

NBS 490

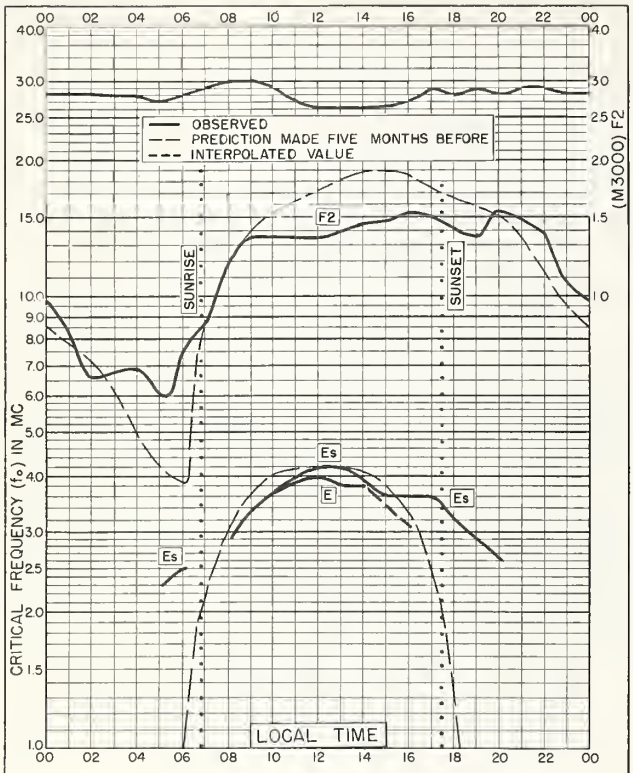


Fig. 53. FORMOSA, CHINA
25.0°N, 121.5°E JANUARY 1957

NBS 503

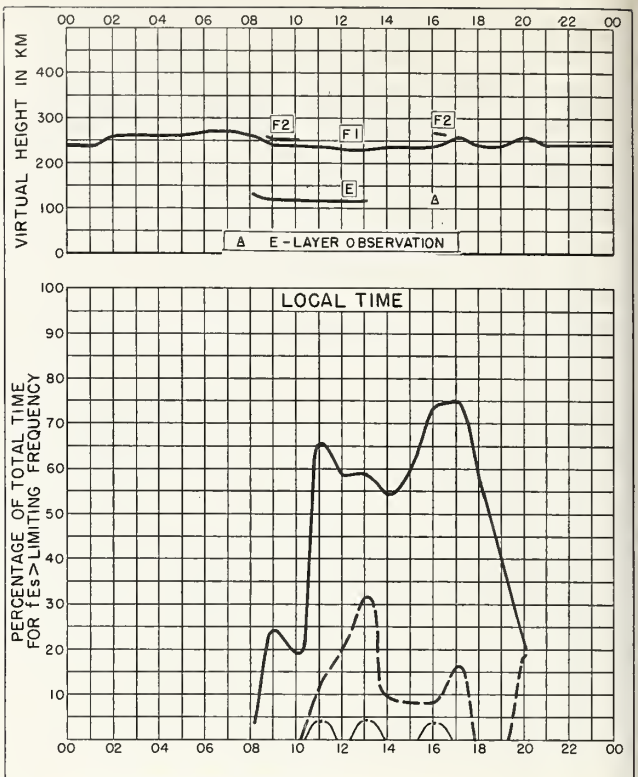


Fig. 54. FORMOSA, CHINA JANUARY 1957

NBS 490

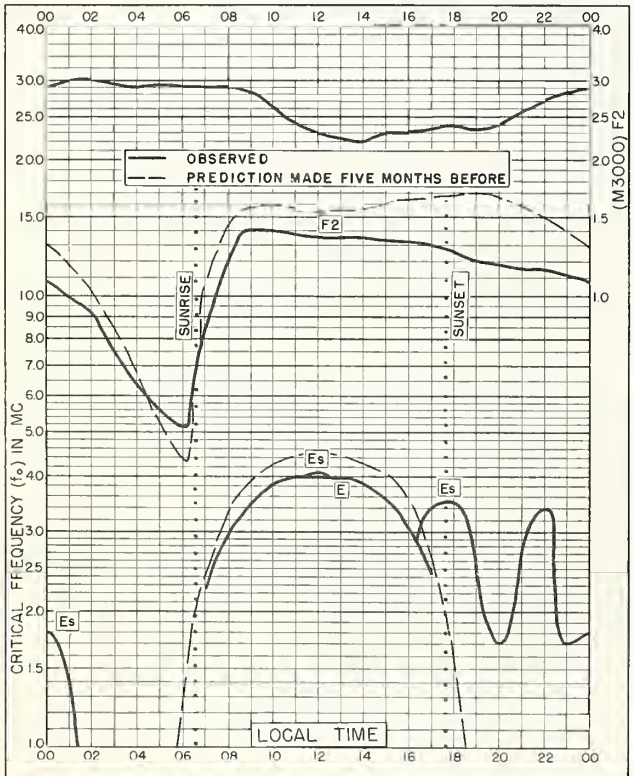


Fig. 55. BAGUIO, P. I.
16.4°N, 120.6°E JANUARY 1957

NBS 503

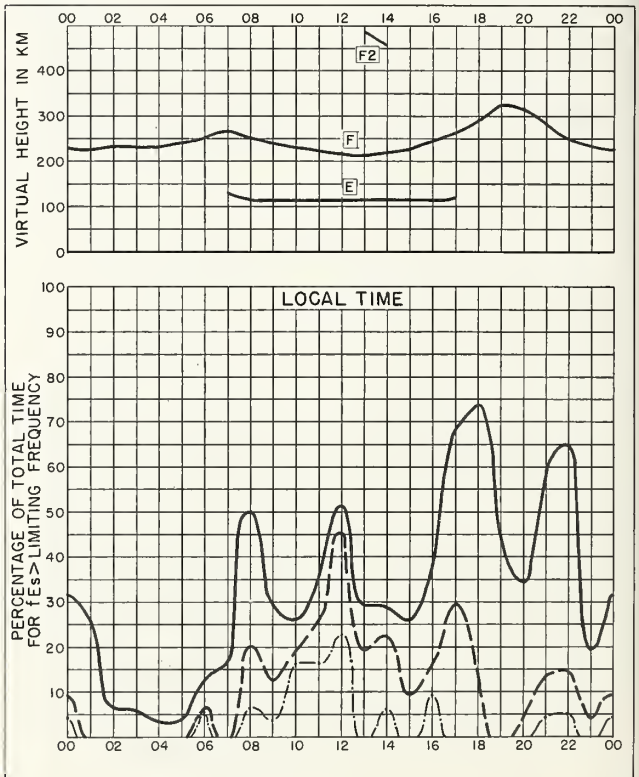


Fig. 56. BAGUIO, P. I. JANUARY 1957

NBS 490

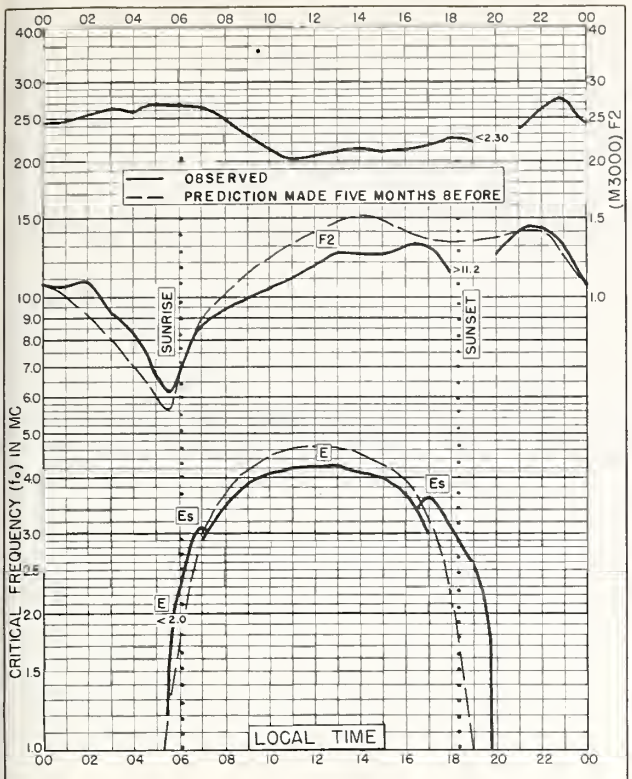
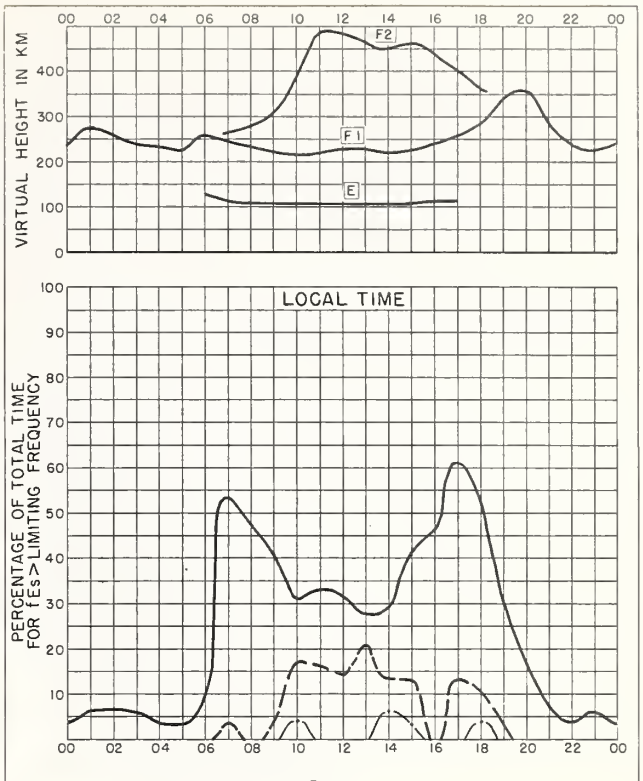


Fig. 57. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E JANUARY 1957

NBS 503



JANUARY 1957

Fig. 58. LEOPOLDVILLE, BELGIAN CONGO

NBS 490

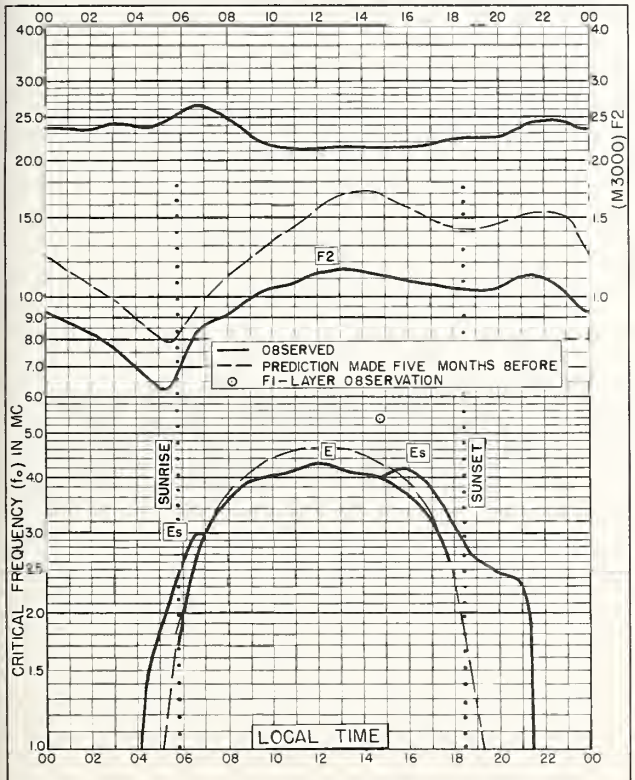
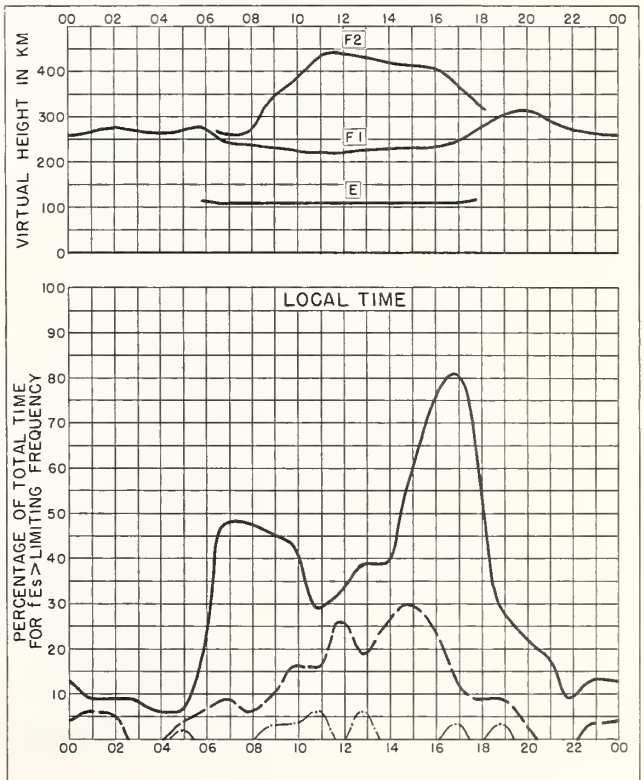


Fig. 59. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E JANUARY 1957

NBS 503



JANUARY 1957

Fig. 60. ELISABETHVILLE, BELGIAN CONGO

NBS 490

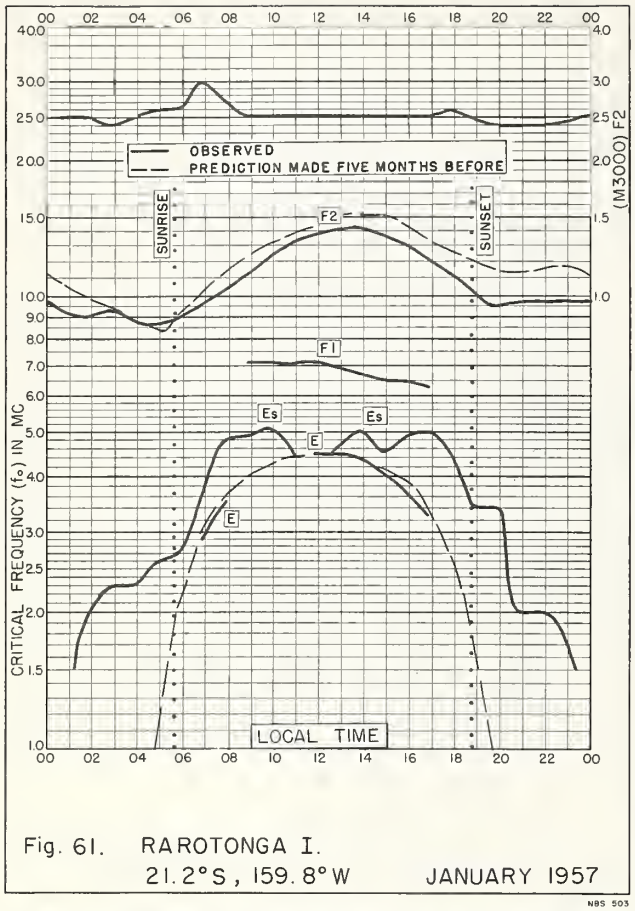


Fig. 61. RAROTONGA I.
21.2°S, 159.8°W JANUARY 1957

NBS 503

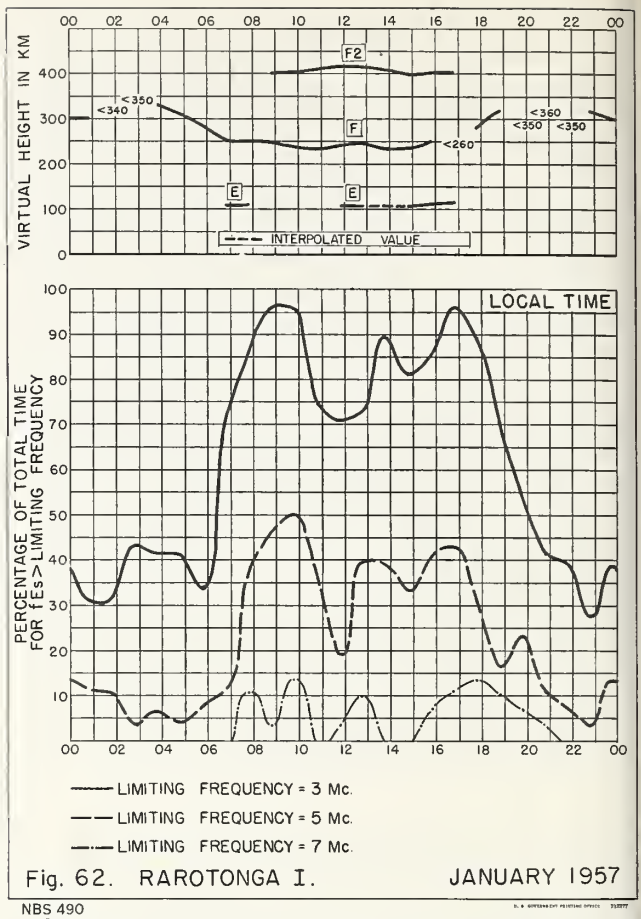


Fig. 62. RAROTONGA I. JANUARY 1957

NBS 490

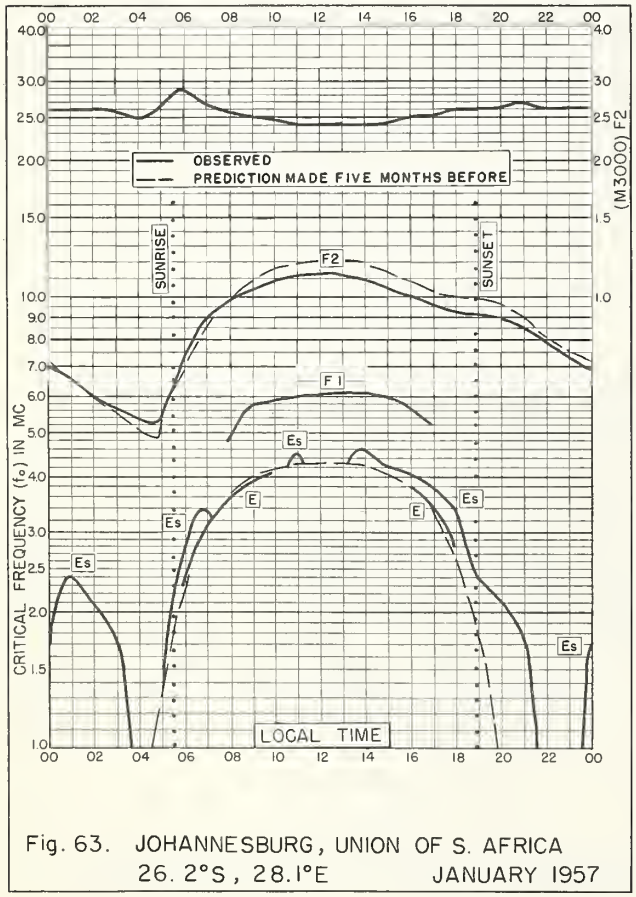


Fig. 63. JOHANNESBURG, UNION OF S. AFRICA
26.2°S, 28.1°E JANUARY 1957

NBS 503

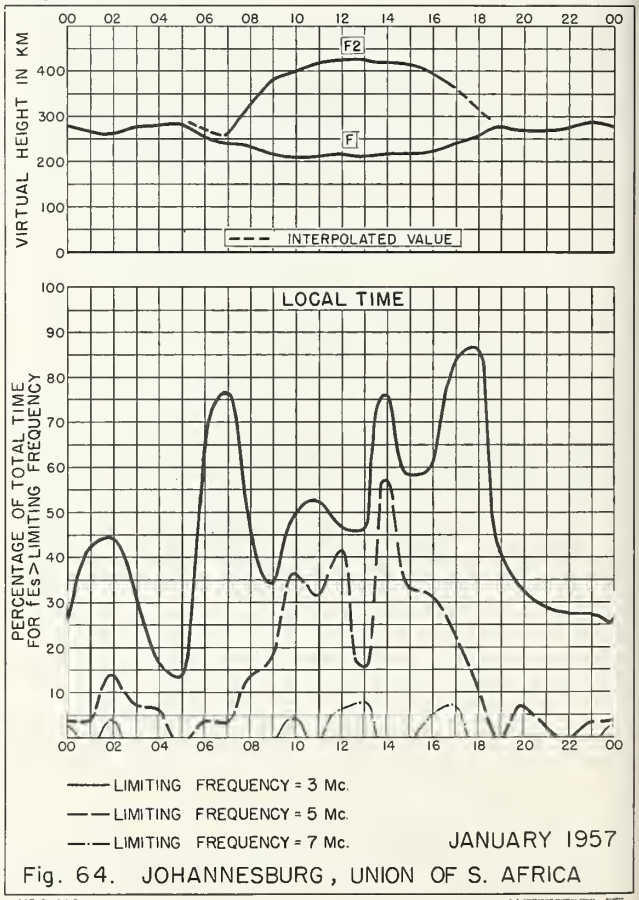


Fig. 64. JOHANNESBURG, UNION OF S. AFRICA JANUARY 1957

NBS 490

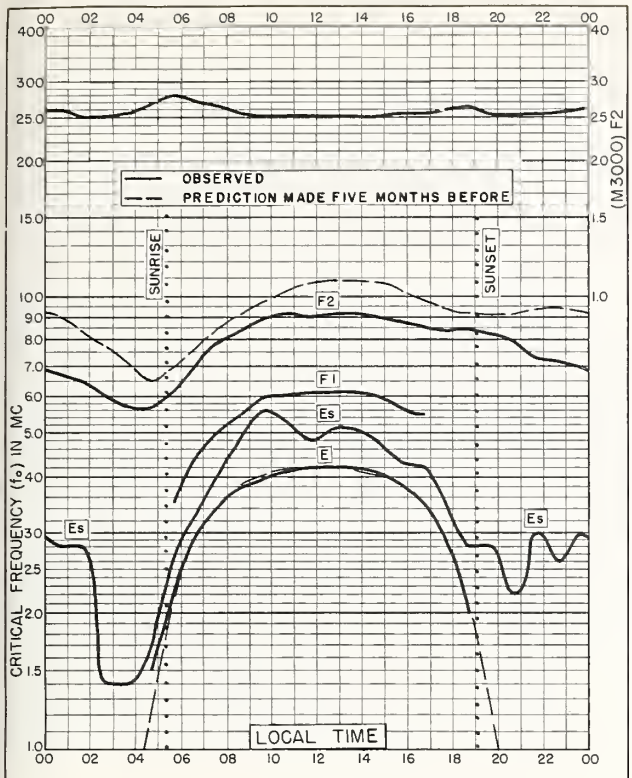
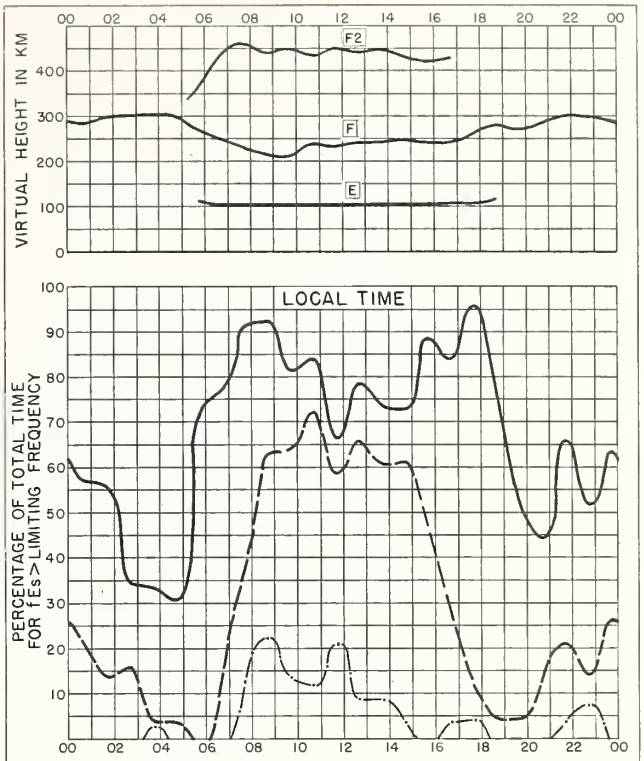


Fig. 65. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E JANUARY 1957

NBS 503



JANUARY 1957

Fig. 66. WATHEROO, W. AUSTRALIA

NBS 490

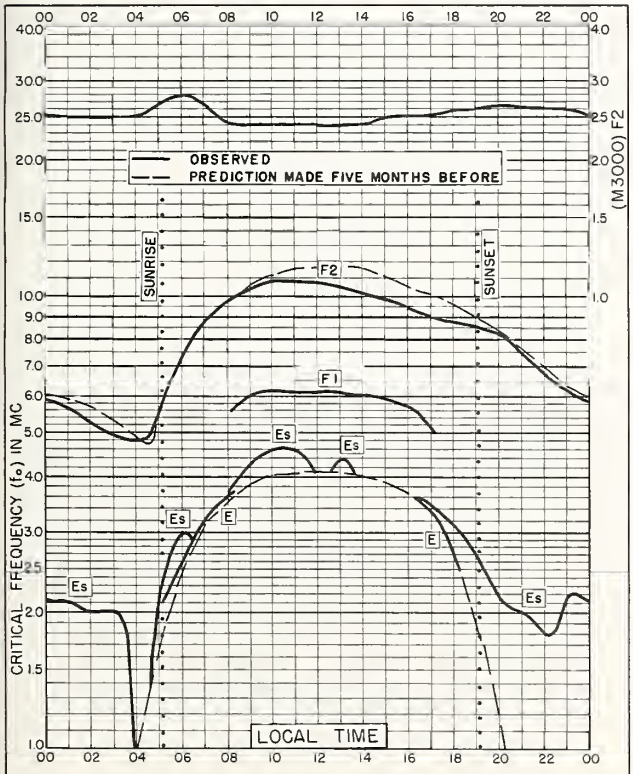
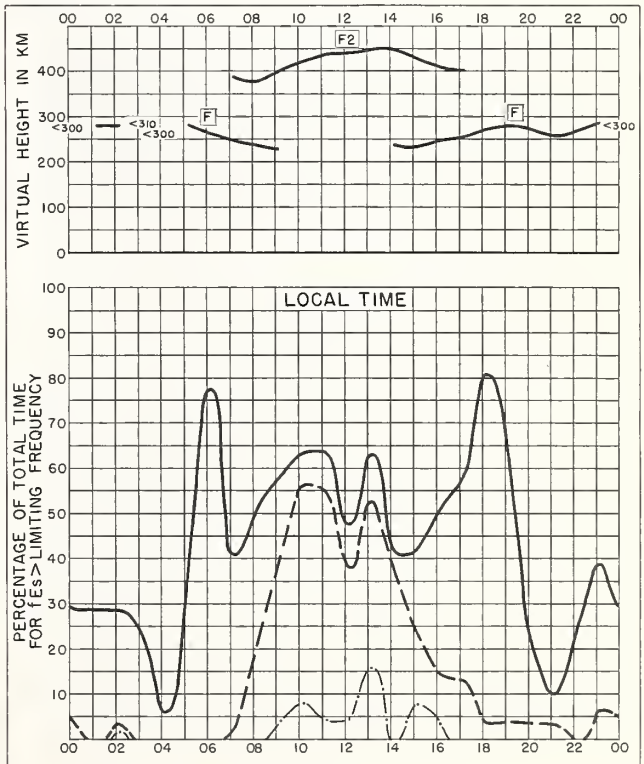


Fig. 67. CAPETOWN, UNION OF S. AFRICA
34.2°S, 18.3°E JANUARY 1957

NBS 503



JANUARY 1957

Fig. 68. CAPETOWN, UNION OF S. AFRICA

NBS 490

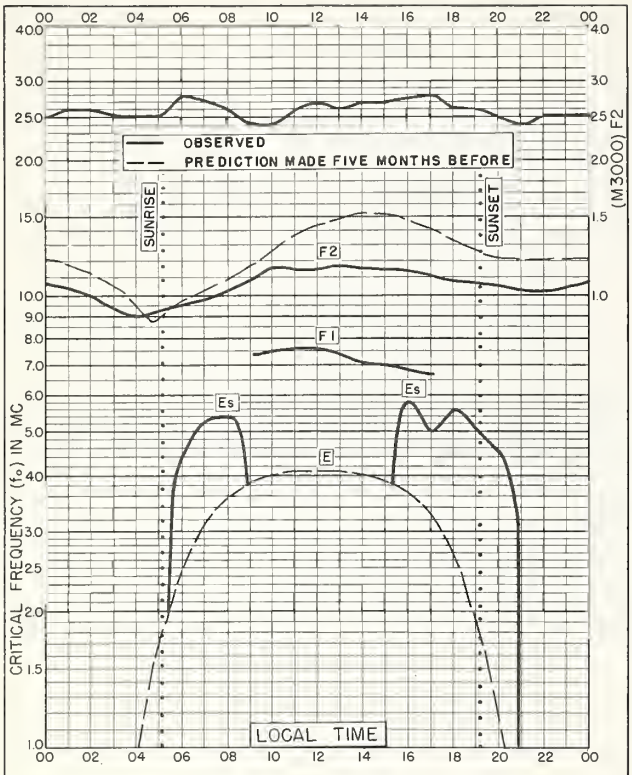


Fig. 69. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W JANUARY 1957

NBS 503

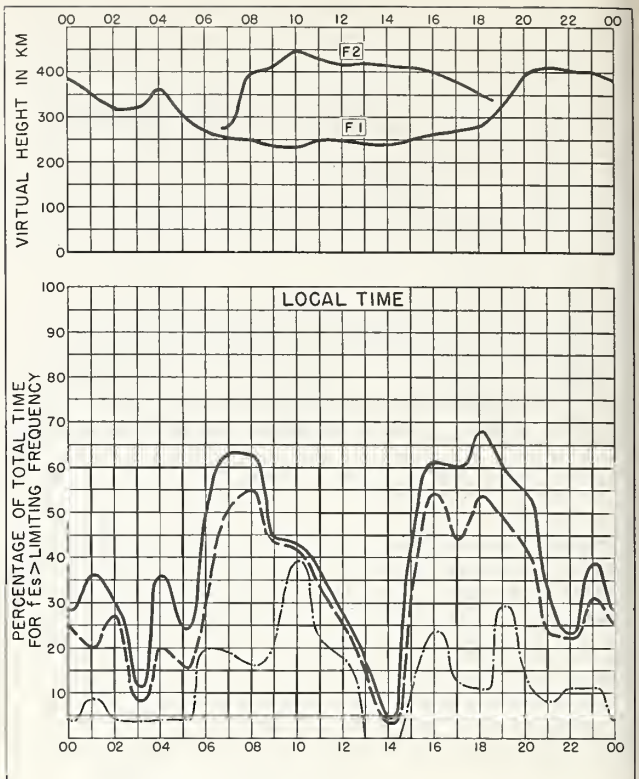


Fig. 70. BUENOS AIRES, ARGENTINA JANUARY 1957

NBS 490

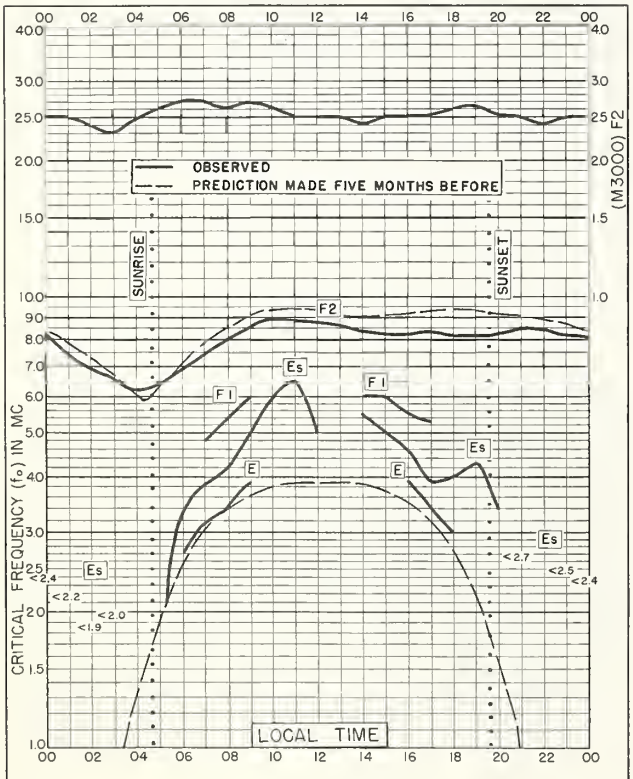


Fig. 71. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E JANUARY 1957

NBS 503

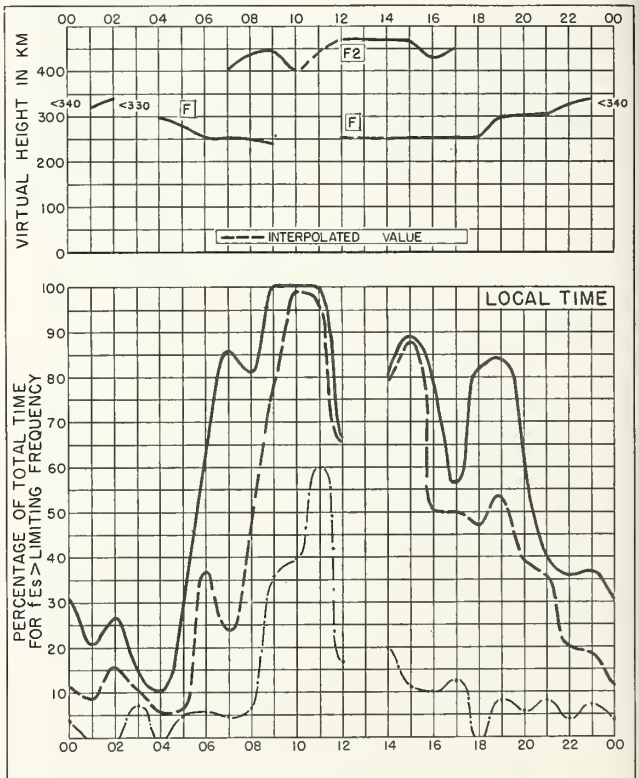


Fig. 72. CHRISTCHURCH, NEW ZEALAND JANUARY 1957

NBS 490

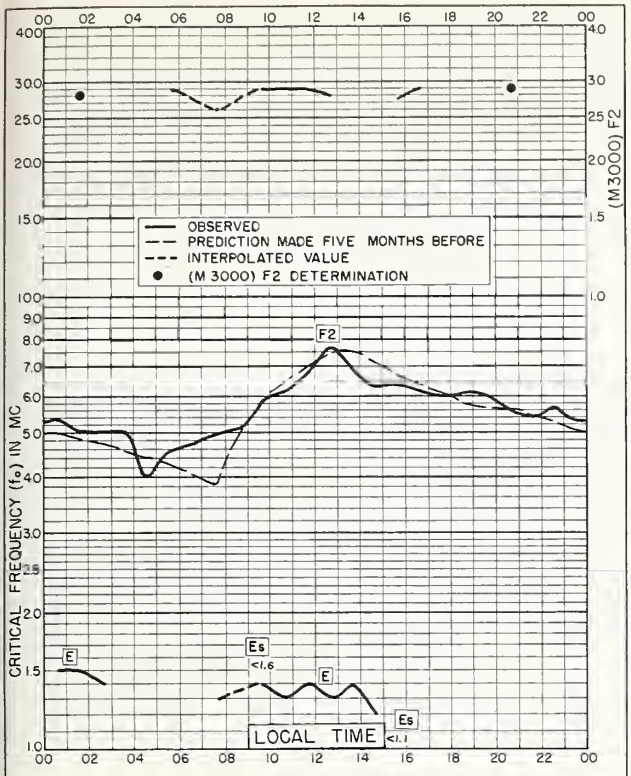
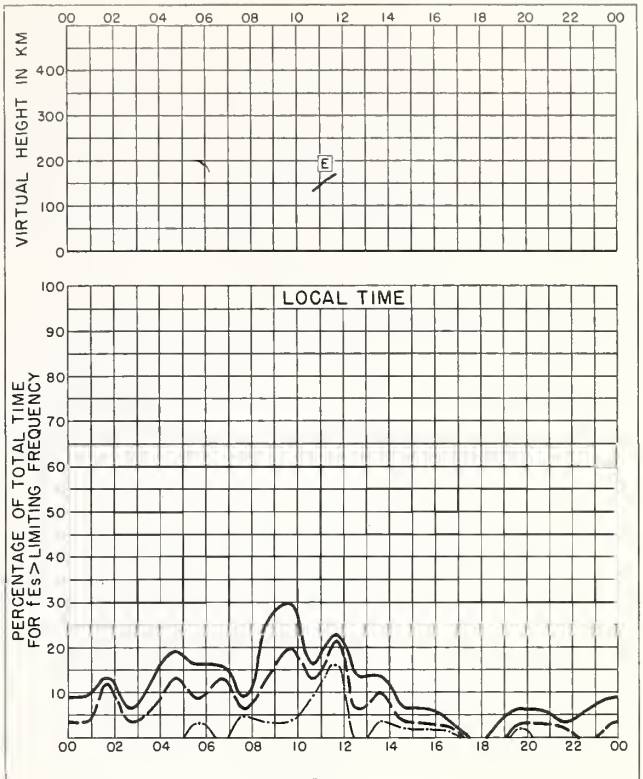


Fig. 73. RESOLUTE BAY, CANADA
74.7°N, 94.9°W DECEMBER 1956

NBS 503



DECEMBER 1956

Fig. 74. RESOLUTE BAY, CANADA

NBS 490

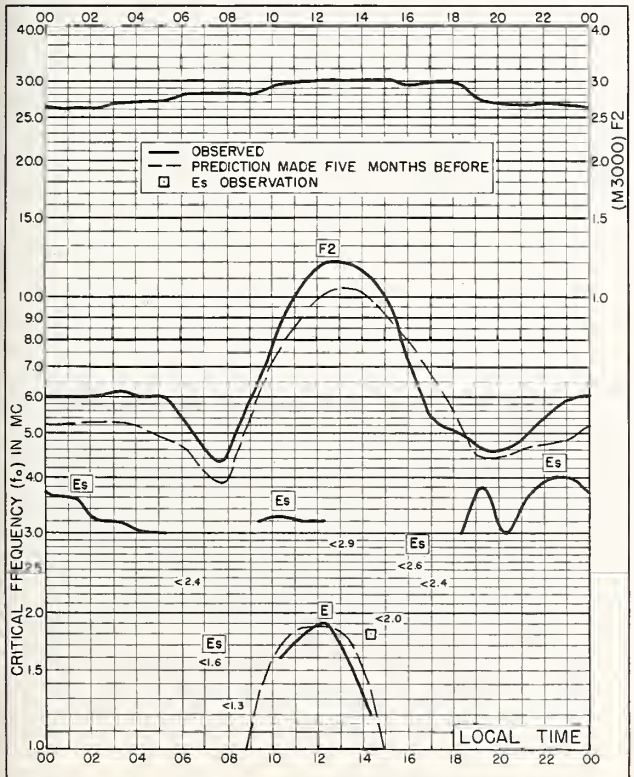


Fig. 75. KIRUNA, SWEDEN
67.8°N, 20.3°E DECEMBER 1956

NBS 503

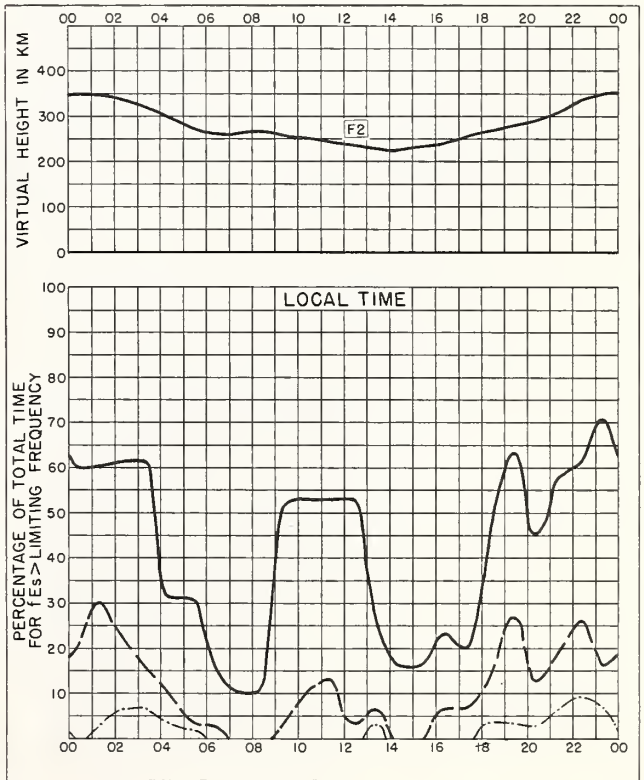


Fig. 76. KIRUNA, SWEDEN DECEMBER 1956

NBS 490

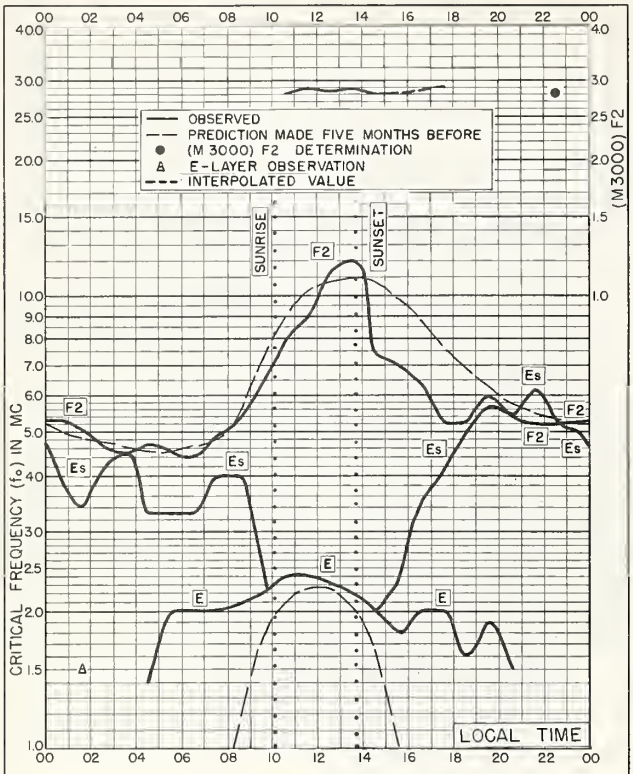


Fig. 77. BAKER LAKE, CANADA
64.3°N, 96.0°W DECEMBER 1956

NBS 503

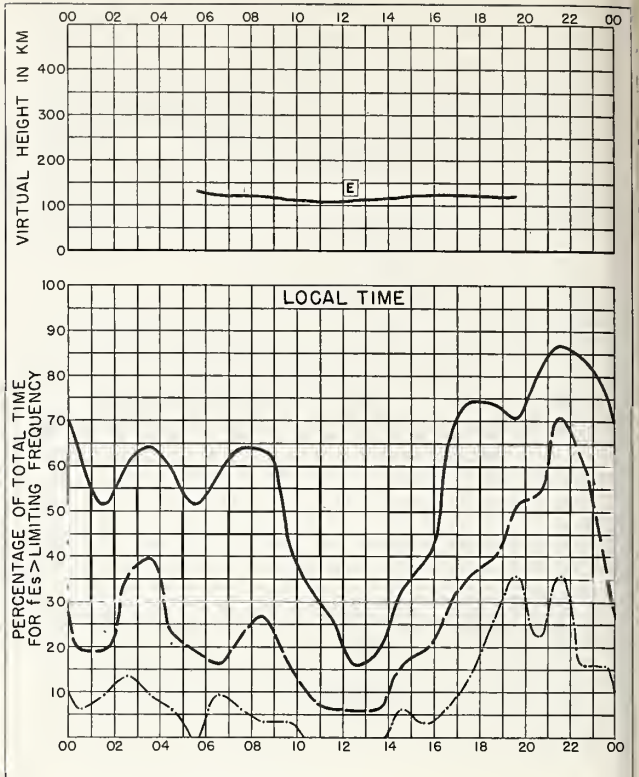


Fig. 78. BAKER LAKE, CANADA DECEMBER 1956

NBS 490

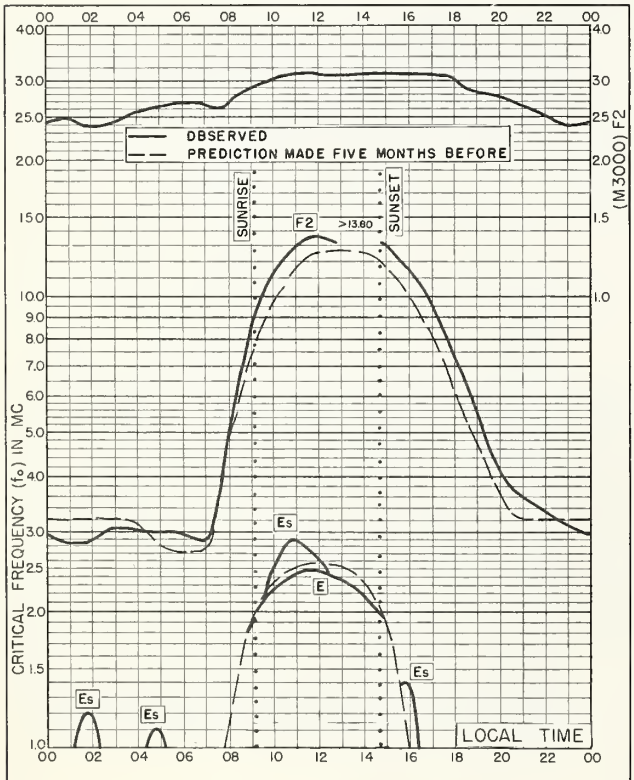


Fig. 79. OSLO, NORWAY
60.0°N, 11.1°E DECEMBER 1956

NBS 503

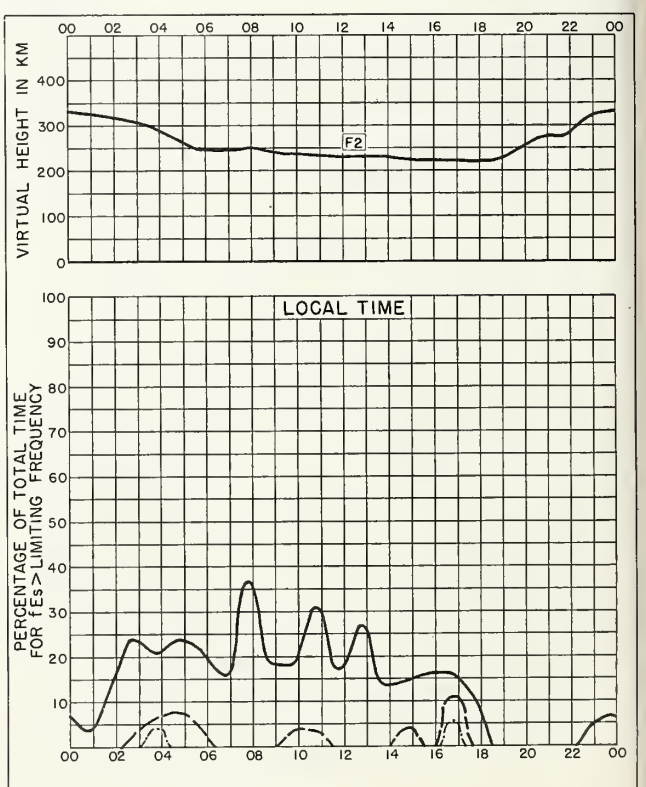


Fig. 80. OSLO, NORWAY DECEMBER 1956

NBS 490

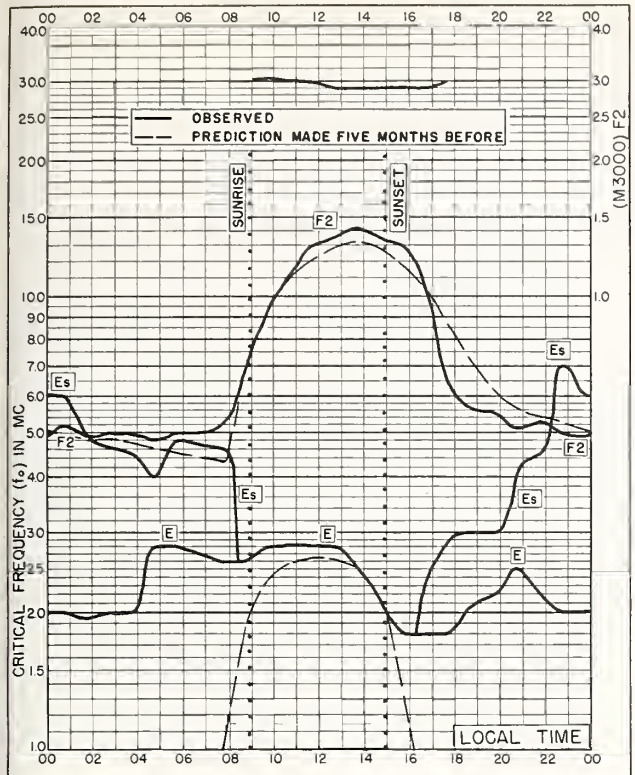


Fig. 81. CHURCHILL, CANADA
58.8°N, 94.2°W DECEMBER 1956

NBS 503

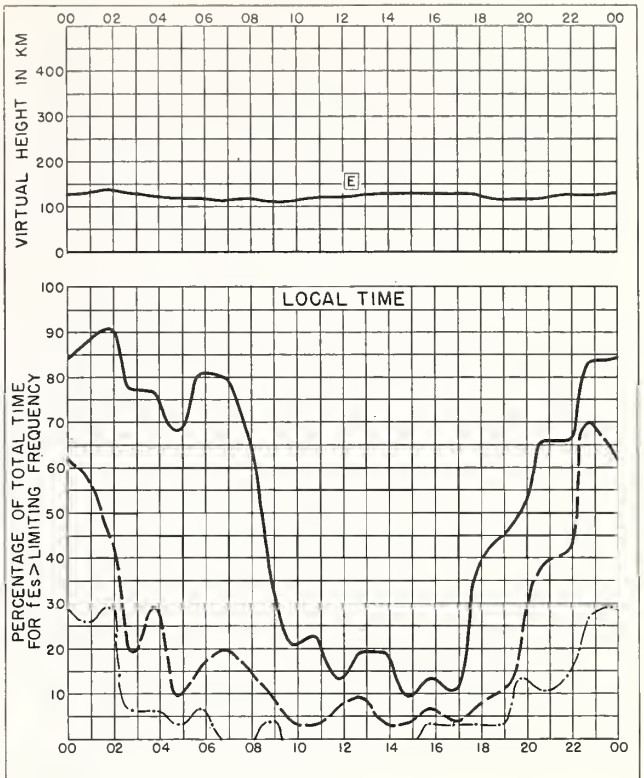


Fig. 82. CHURCHILL, CANADA DECEMBER 1956

NBS 490

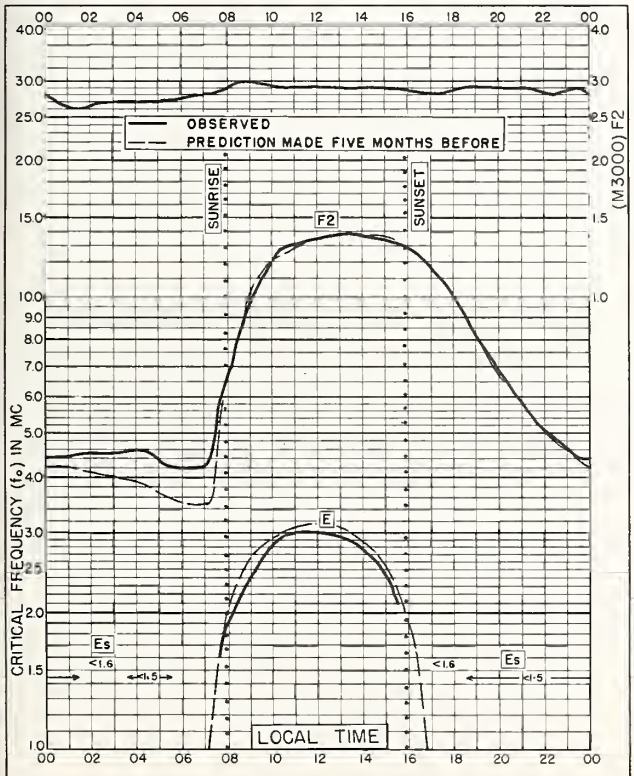


Fig. 83. WINNIPEG, CANADA
49.9°N, 97.4°W DECEMBER 1956

NBS 503

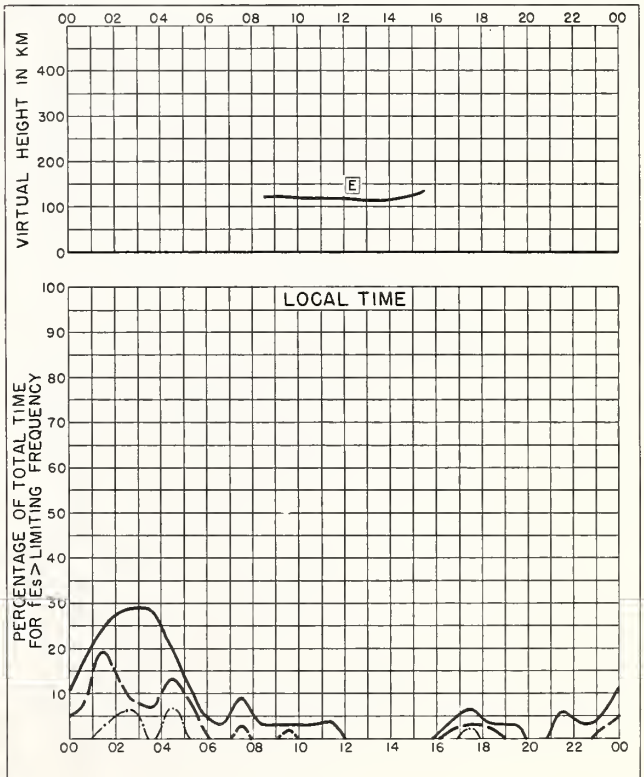


Fig. 84. WINNIPEG, CANADA DECEMBER 1956

NBS 490

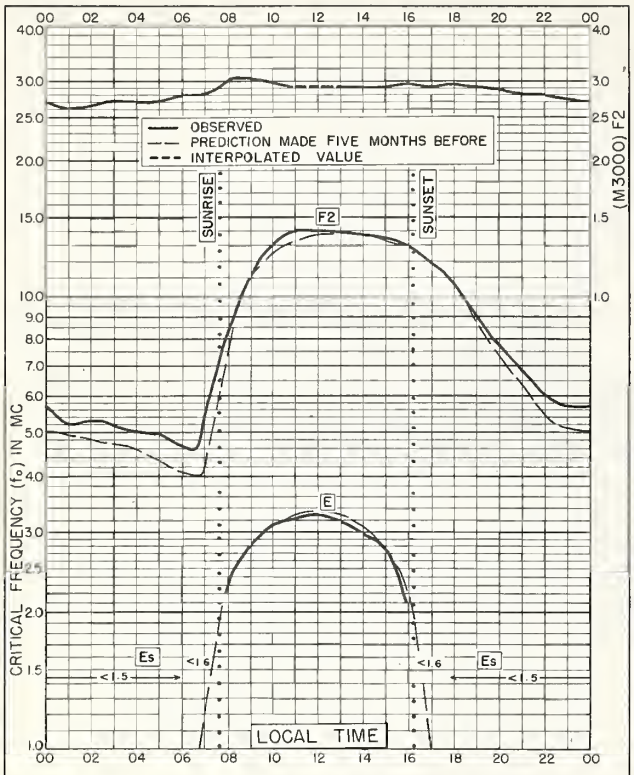


Fig. 85. OTTAWA, CANADA
45.4°N, 75.9°W DECEMBER 1956

NBS 503

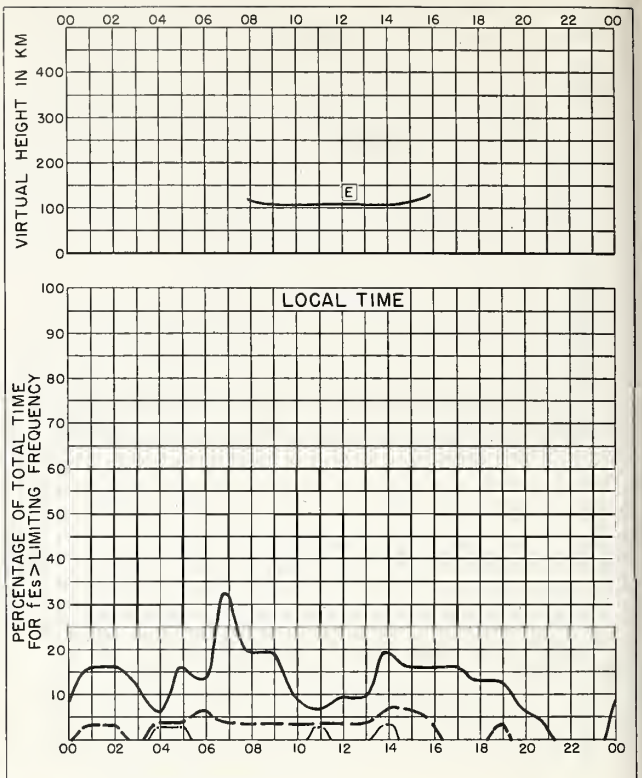


Fig. 86. OTTAWA, CANADA DECEMBER 1956

NBS 490

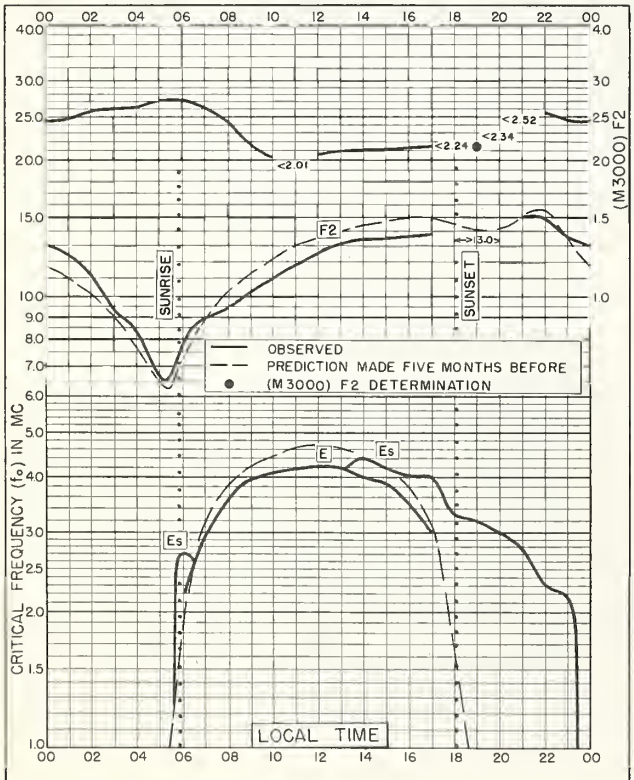


Fig. 87. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E DECEMBER 1956

NBS 503

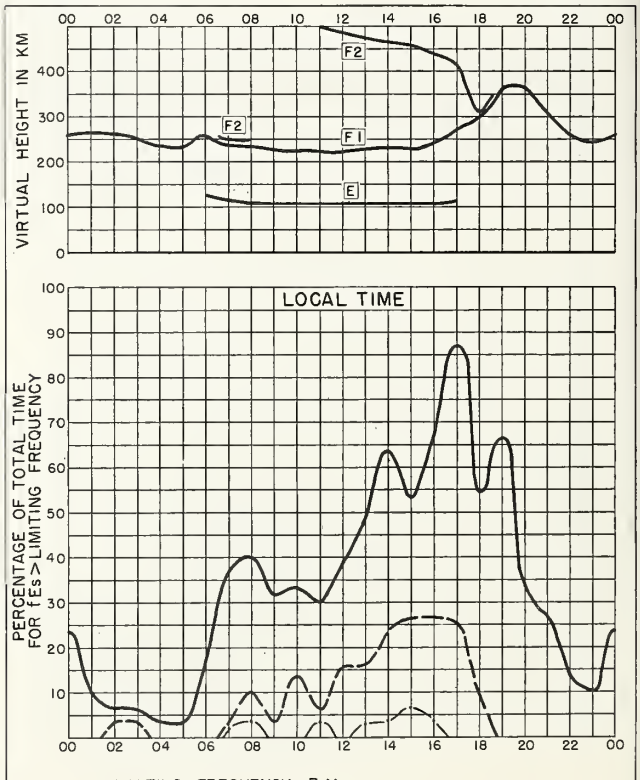


Fig. 88. LEOPOLDVILLE, BELGIAN CONGO DECEMBER 1956

NBS 490

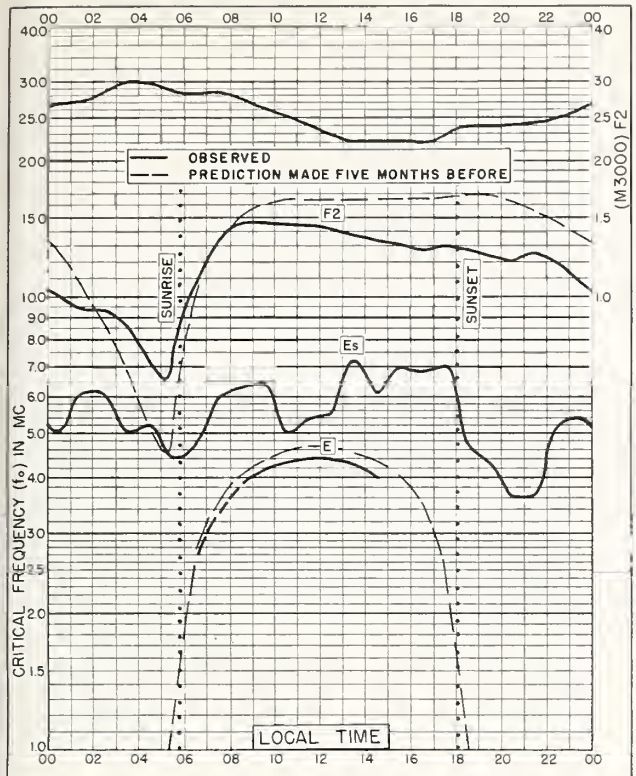


Fig. 89. TALARA, PERU
4.6°S, 81.3°W DECEMBER 1956

NBS 503

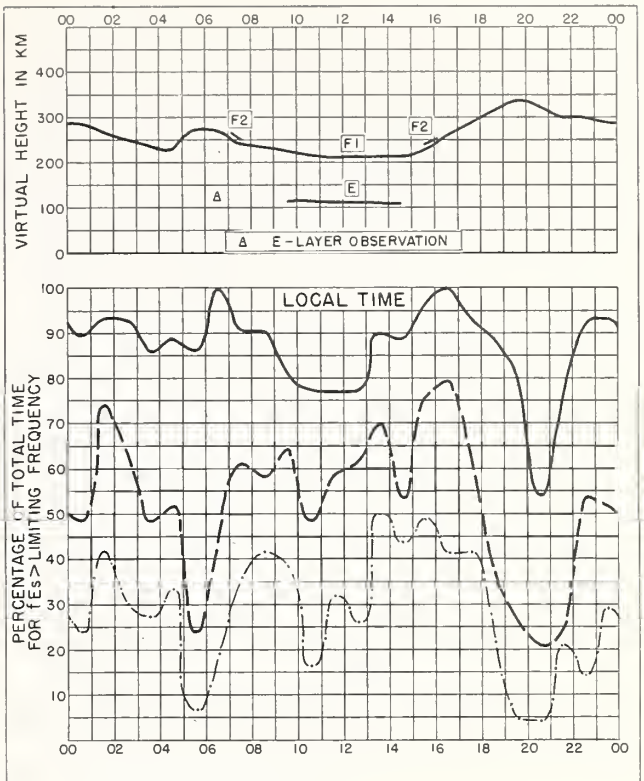


Fig. 90. TALARA, PERU DECEMBER 1956

NBS 490

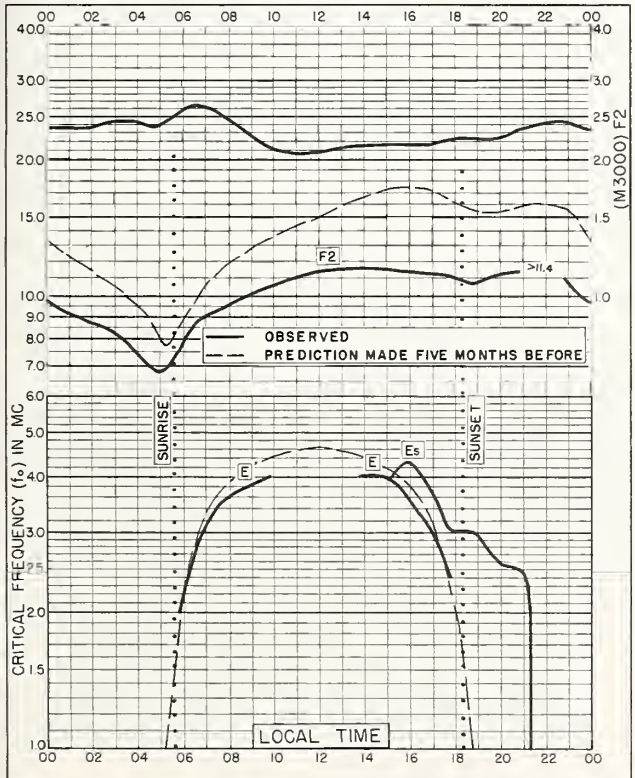


Fig. 91. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E DECEMBER 1956

NBS 503

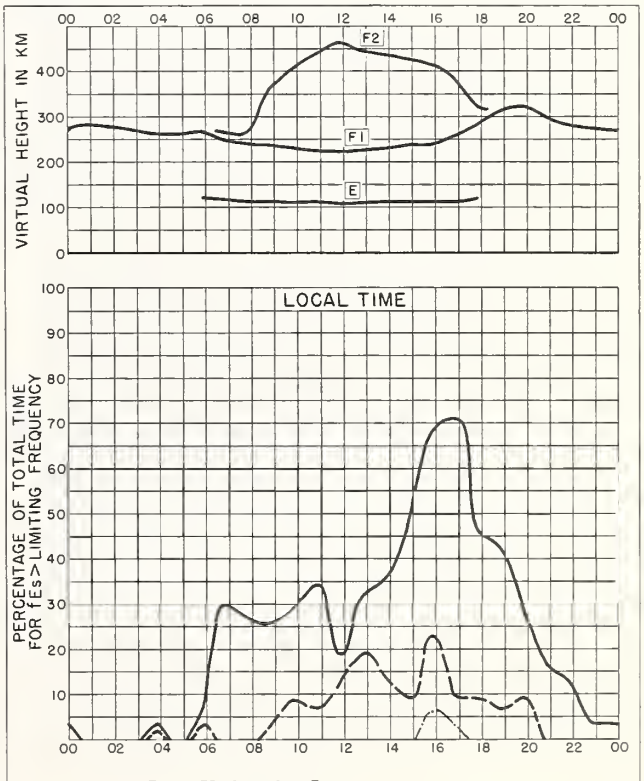


Fig. 92. ELISABETHVILLE, BELGIAN CONGO DECEMBER 1956

NBS 490

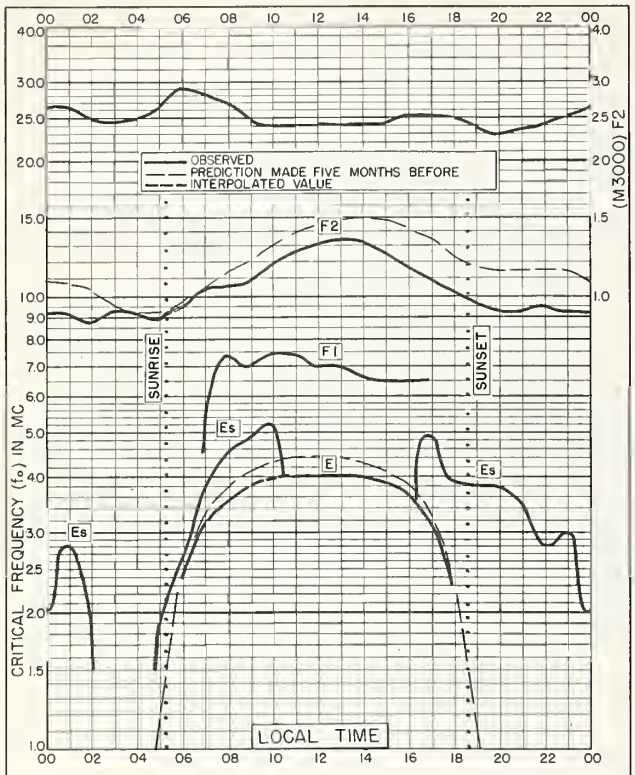


Fig. 93. RAROTONGA I.
21.2°S, 159.8°W DECEMBER 1956

NBS 503

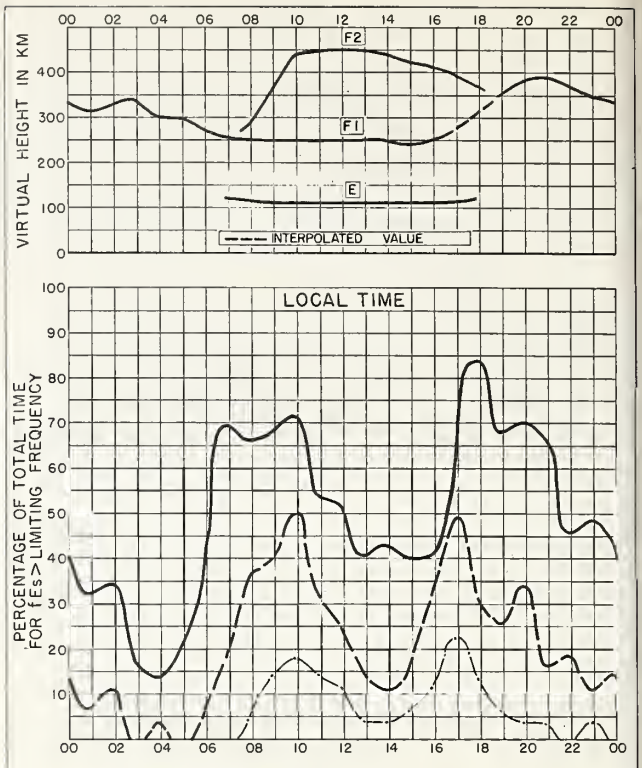


Fig. 94. RAROTONGA I. DECEMBER 1956

NBS 490

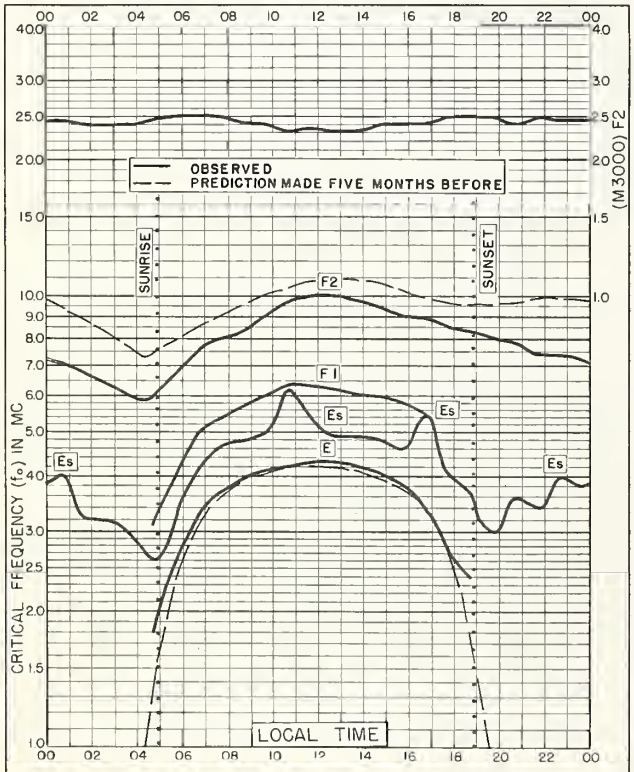


Fig. 95. WATHEROO, W. AUSTRALIA
30.3°S, 115.9°E DECEMBER 1956

NBS 503

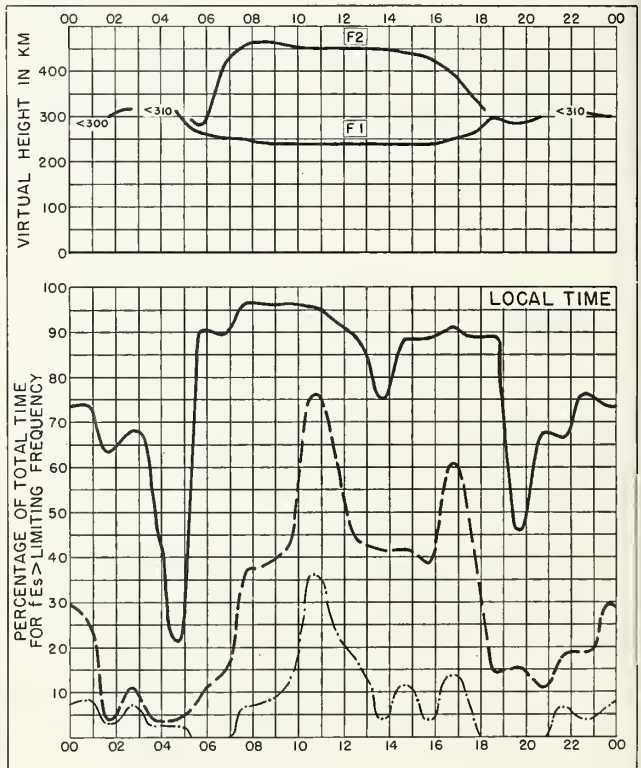


Fig. 96. WATHEROO, W. AUSTRALIA DECEMBER 1956

NBS 490

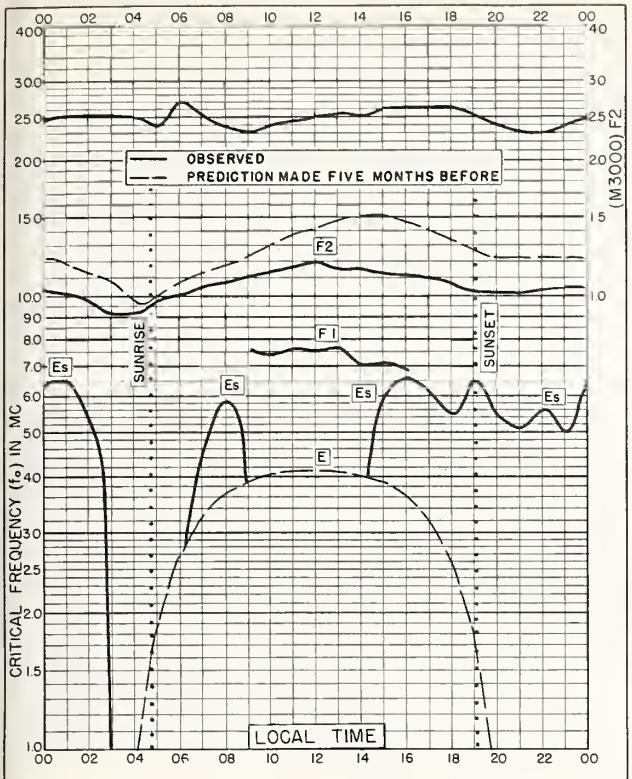
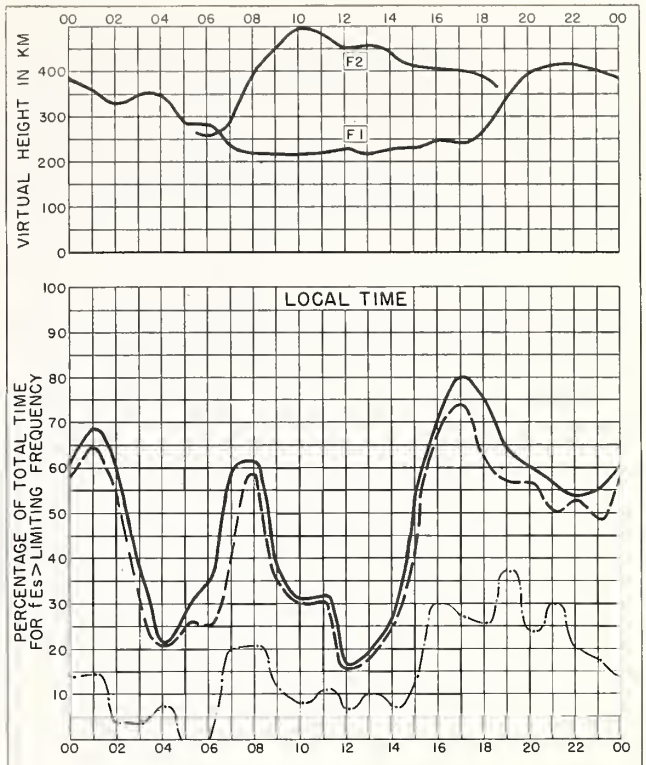


Fig. 97. BUENOS AIRES, ARGENTINA
34.5°S, 58.5°W DECEMBER 1956

NBS 503



DECEMBER 1956

Fig. 98. BUENOS AIRES, ARGENTINA

NBS 490

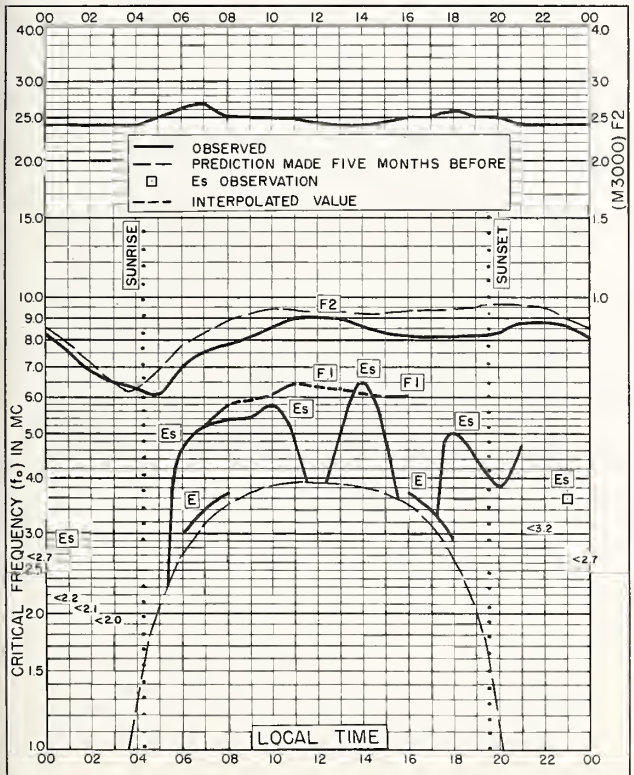
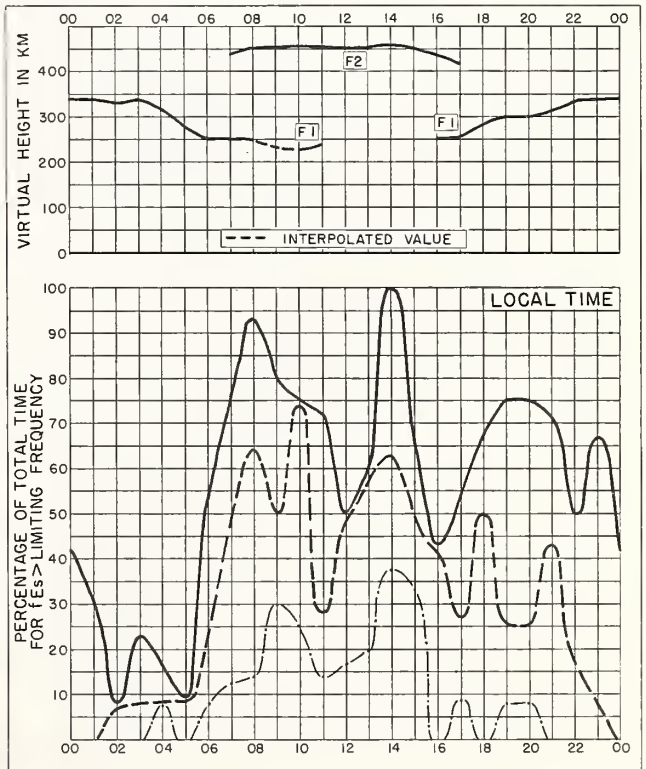


Fig. 99. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E DECEMBER 1956

NBS 503



DECEMBER 1956

Fig. 100. CHRISTCHURCH, NEW ZEALAND

NBS 490

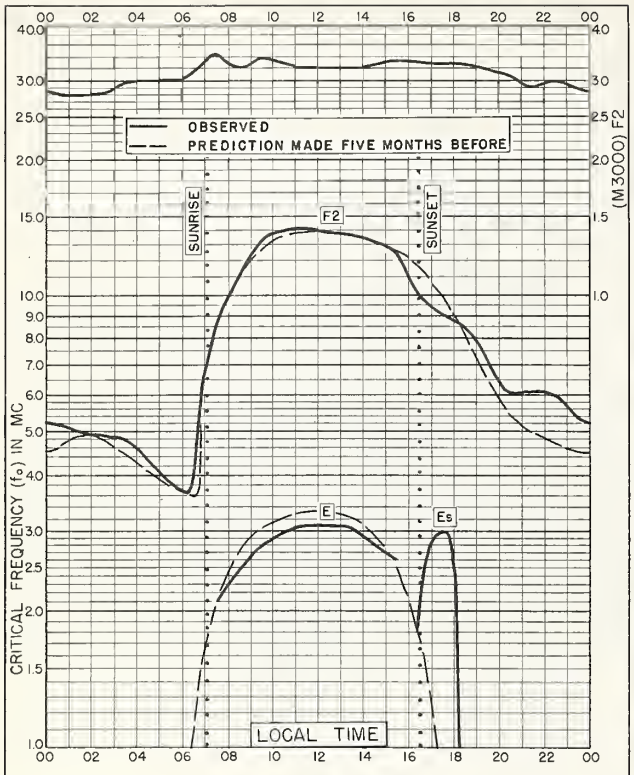
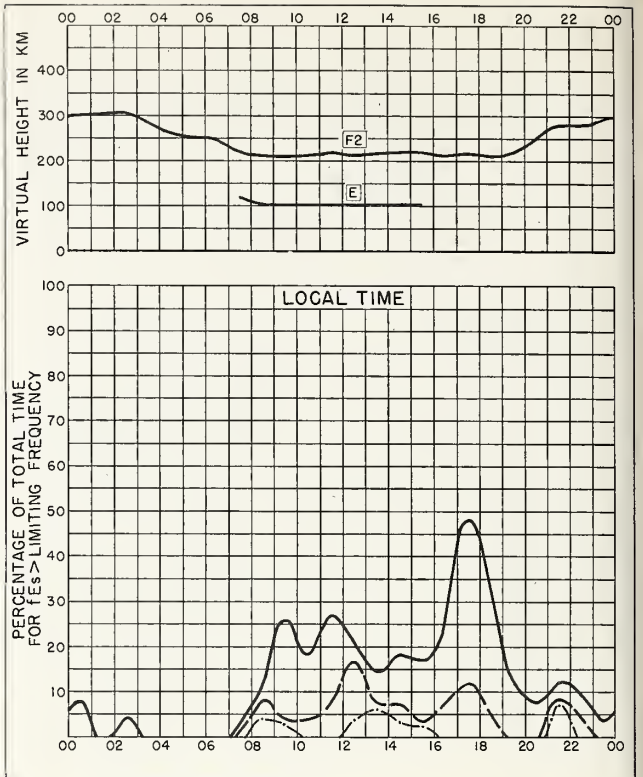


Fig. 101. SCHWARZENBURG, SWITZERLAND
46.8°N, 7.3°E NOVEMBER 1956

NBS 503



NOVEMBER 1956

Fig. 102. SCHWARZENBURG, SWITZERLAND

NBS 490

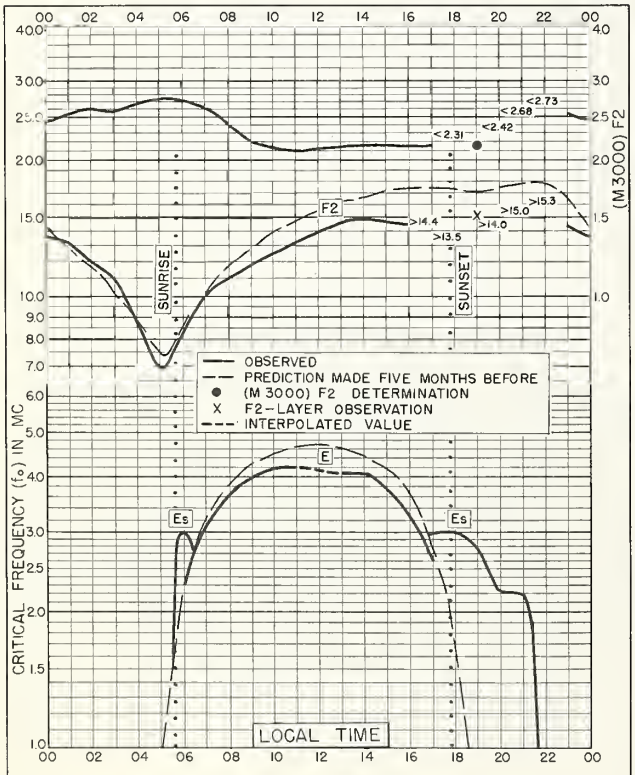
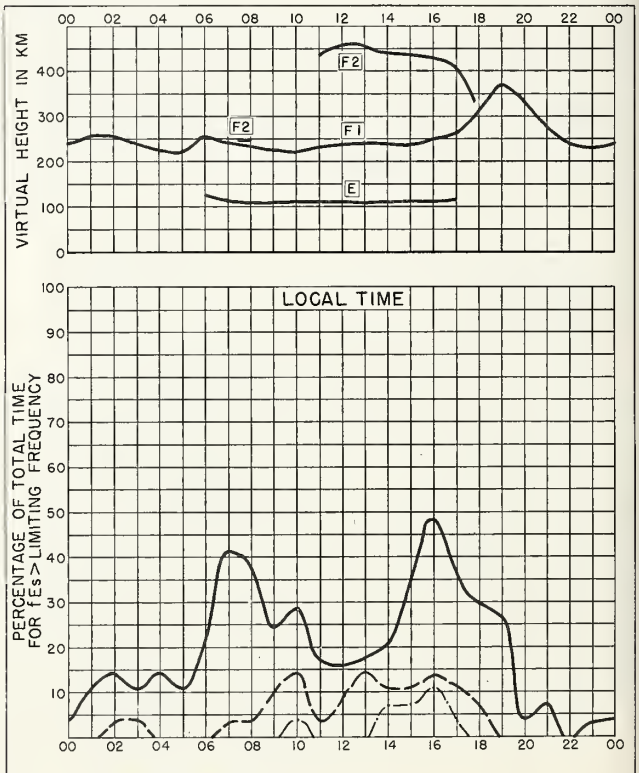


Fig. 103. LEOPOLDVILLE, BELGIAN CONGO
4.4°S, 15.2°E NOVEMBER 1956

NBS 503



NOVEMBER 1956

Fig. 104. LEOPOLDVILLE, BELGIAN CONGO

NBS 490

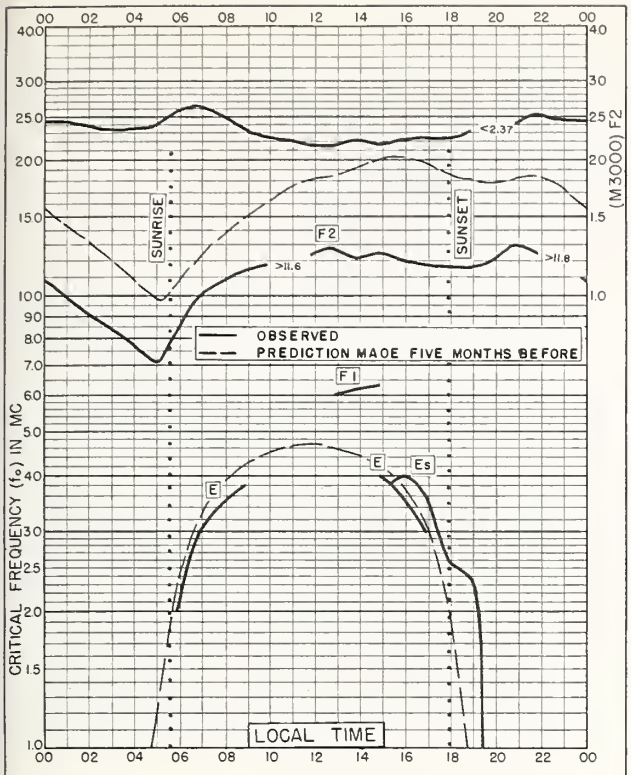
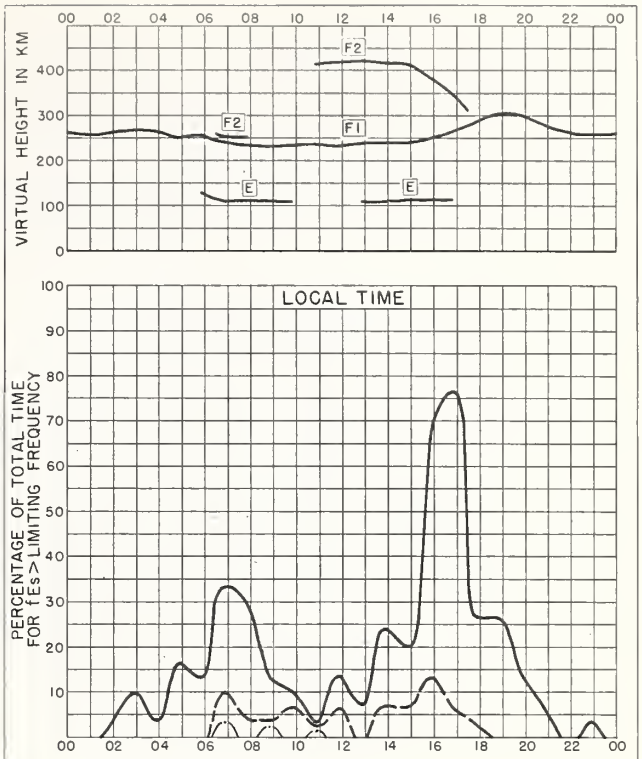


Fig. 105. ELISABETHVILLE, BELGIAN CONGO
11.6°S, 27.5°E NOVEMBER 1956

NBS 503



NOVEMBER 1956

Fig. 106. ELISABETHVILLE, BELGIAN CONGO

NBS 490

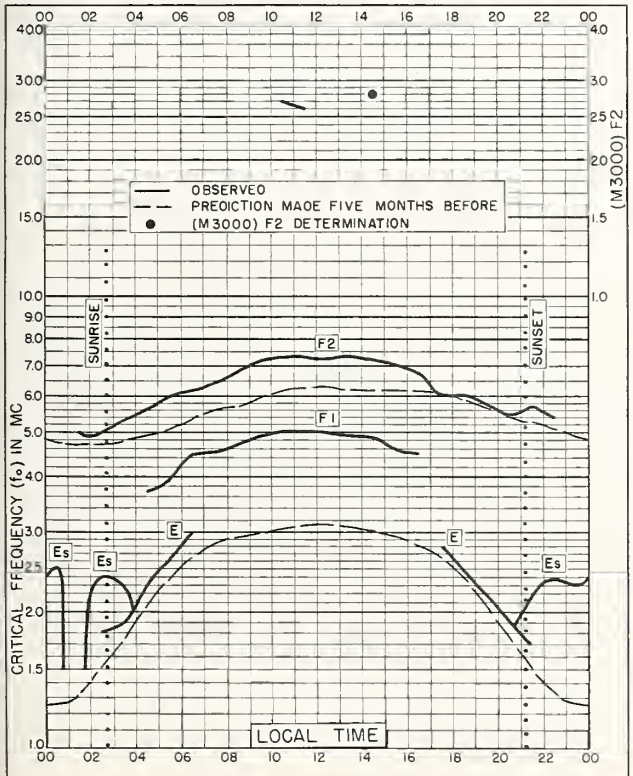


Fig. 107. LULEA, SWEDEN
65.6°N, 22.1°E MAY 1956

NBS 503

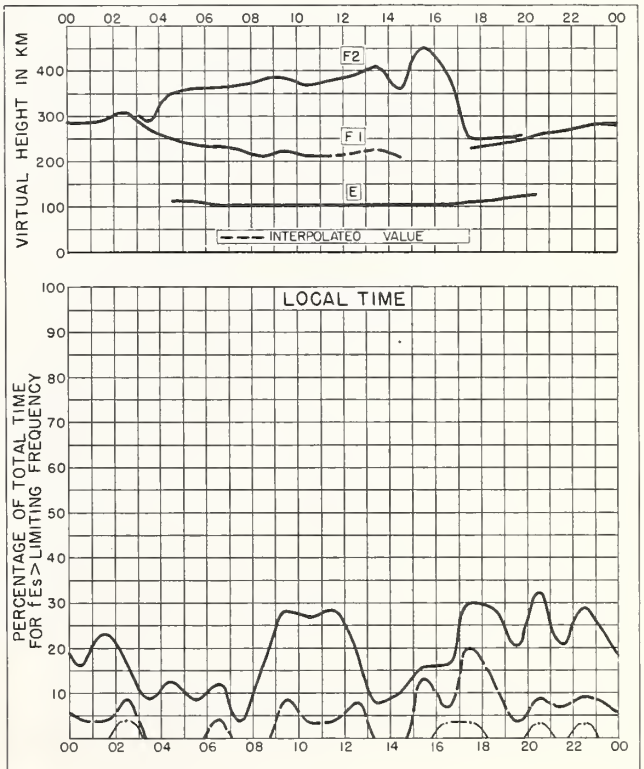


Fig. 108. LULEA, SWEDEN MAY 1956

NBS 490

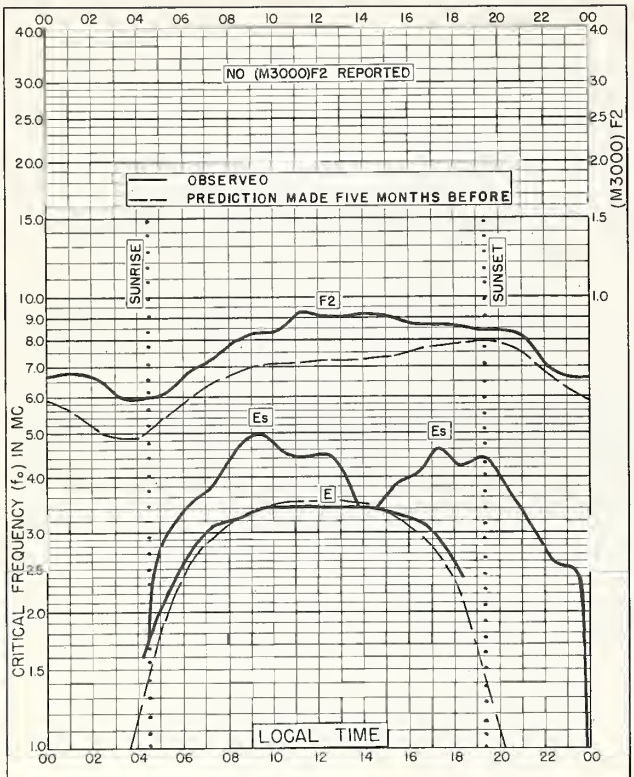


Fig. 109. BUDAPEST, HUNGARY
47.6°N, 19.0°E MAY 1956

NBS 503

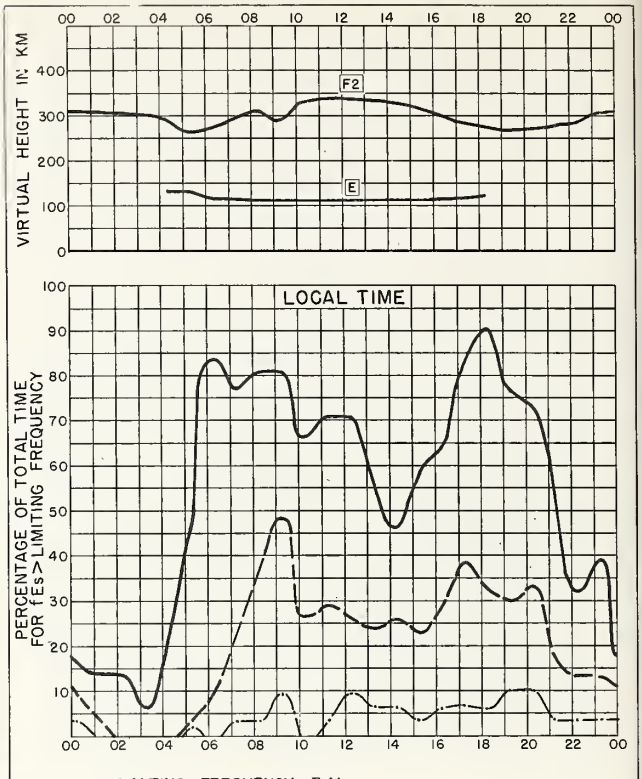


Fig. 110. BUDAPEST, HUNGARY MAY 1956

NBS 490

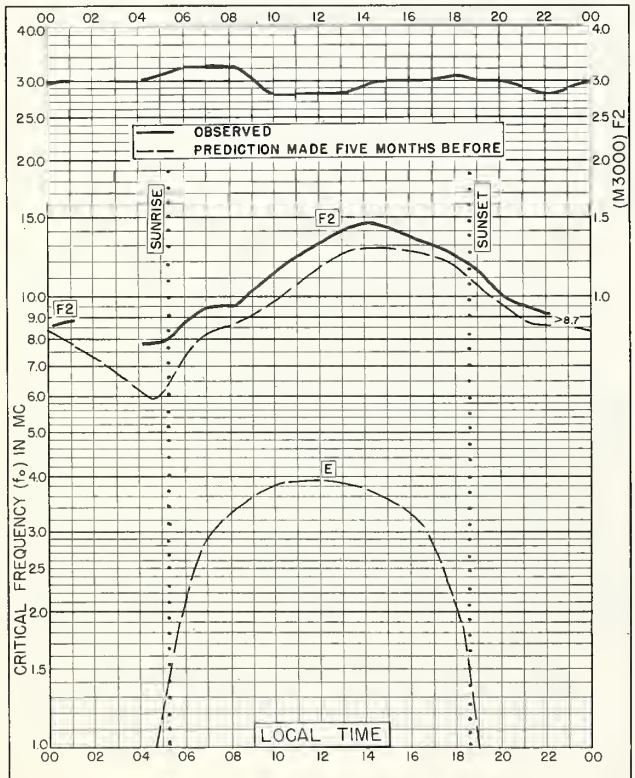


Fig. 111. DELHI, INDIA
28.6°N, 77.1°E MAY 1956

NBS 503

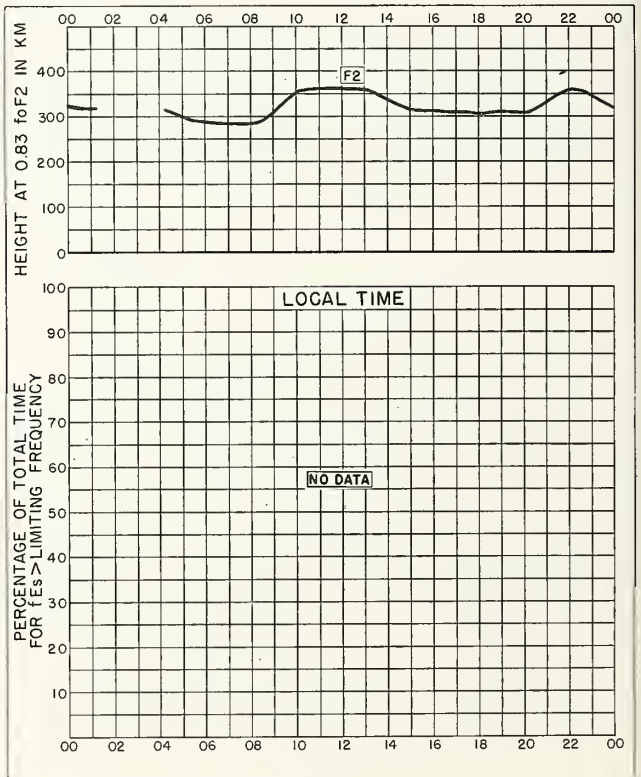


Fig. 112. DELHI, INDIA MAY 1956

NBS 490

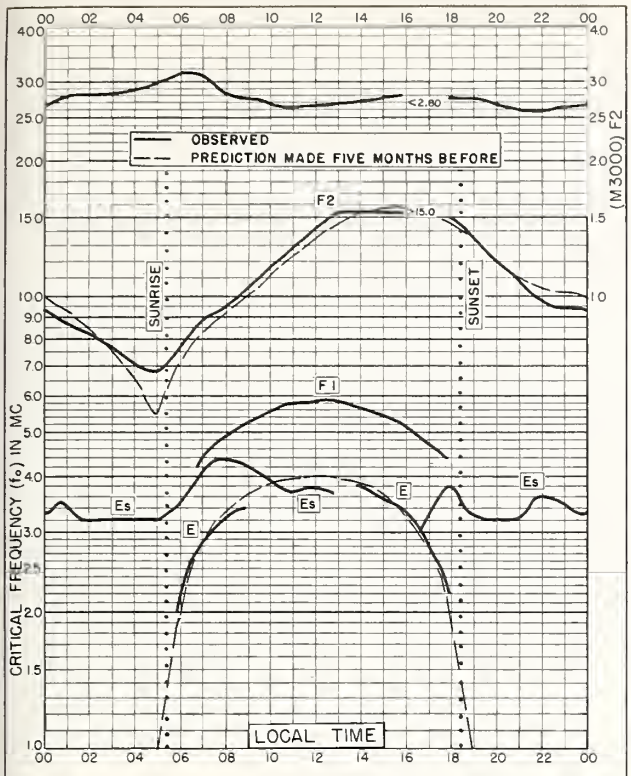


Fig. 113. AHMEDABAD, INDIA
23.0°N, 72.6°E MAY 1956

NBS 503

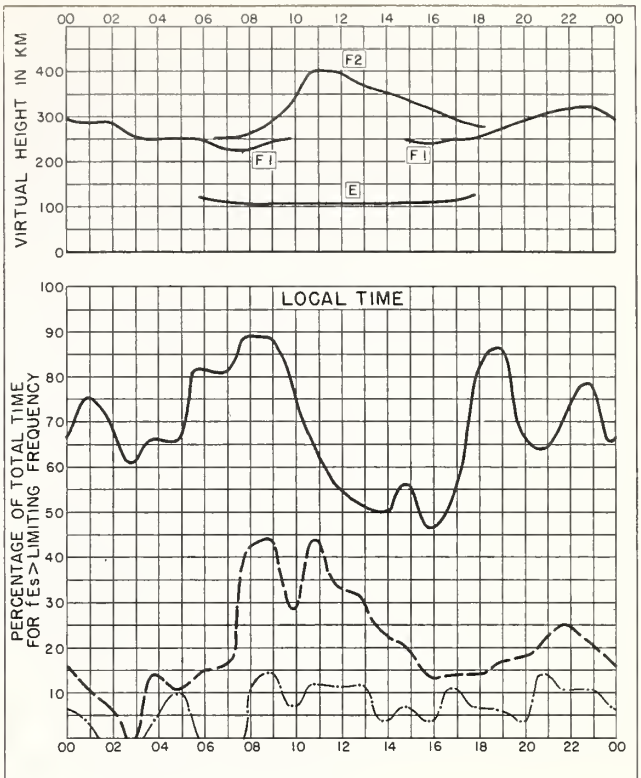


Fig. 114. AHMEDABAD, INDIA MAY 1956

NBS 490

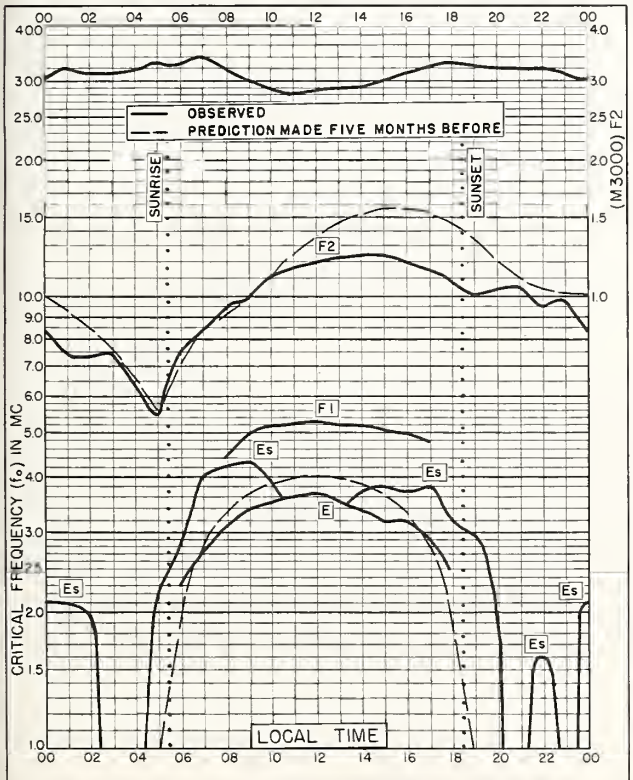


Fig. 115. CALCUTTA, INDIA
22.9°N, 88.5°E MAY 1956

NBS 503

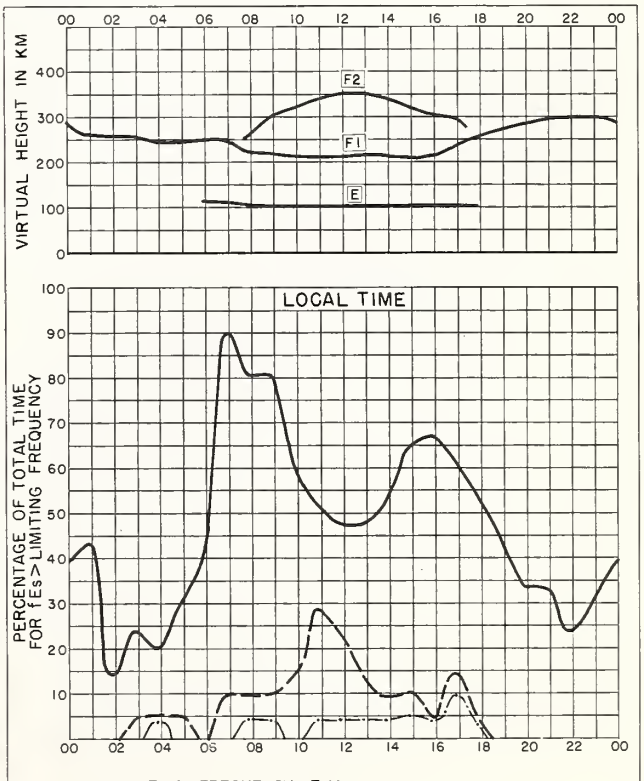


Fig. 116. CALCUTTA, INDIA MAY 1956

NBS 490

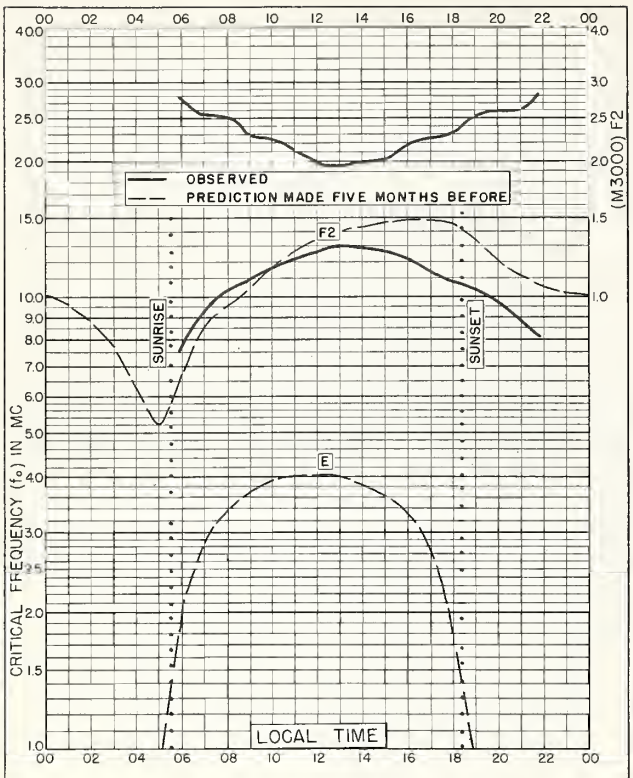


Fig. 117. BOMBAY, INDIA
19.0°N, 73.0°E MAY 1956

NBS 503

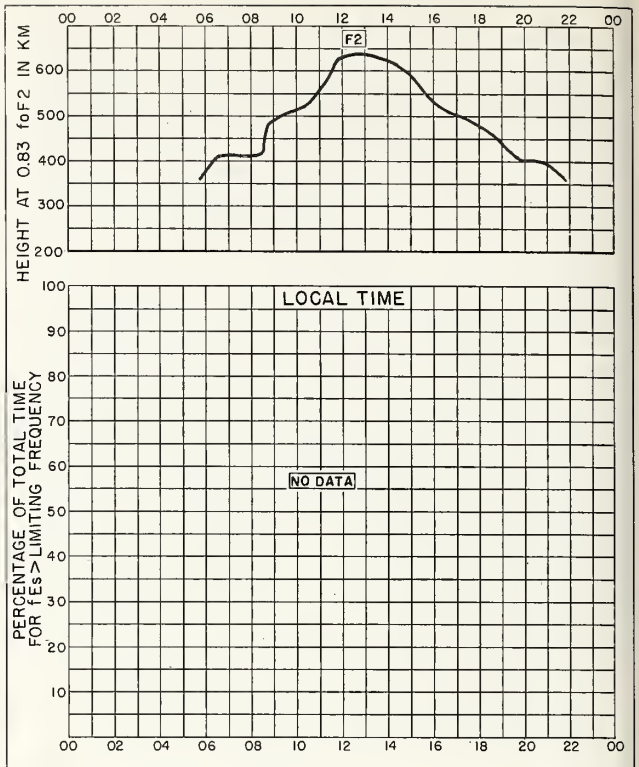


Fig. 118. BOMBAY, INDIA MAY 1956

NBS 490

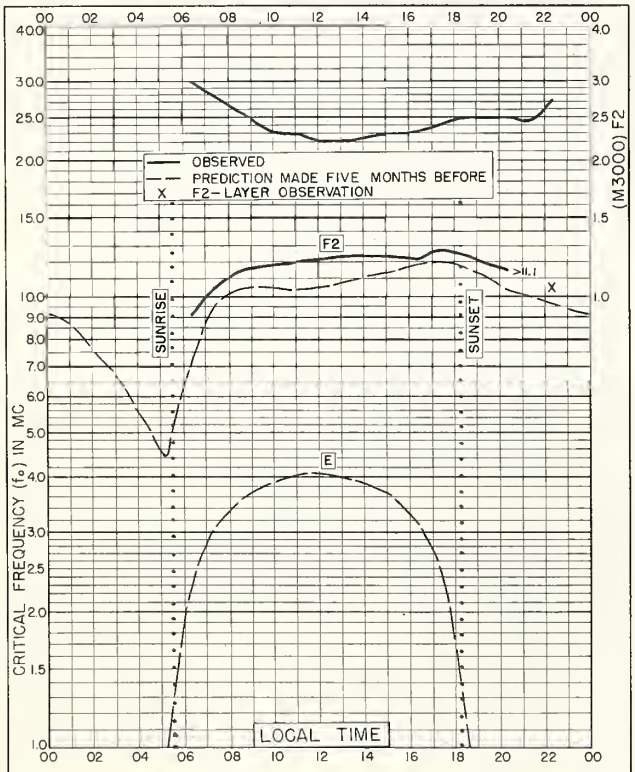


Fig. 119. MADRAS, INDIA
13.0°N, 80.2°E MAY 1956

NBS 503

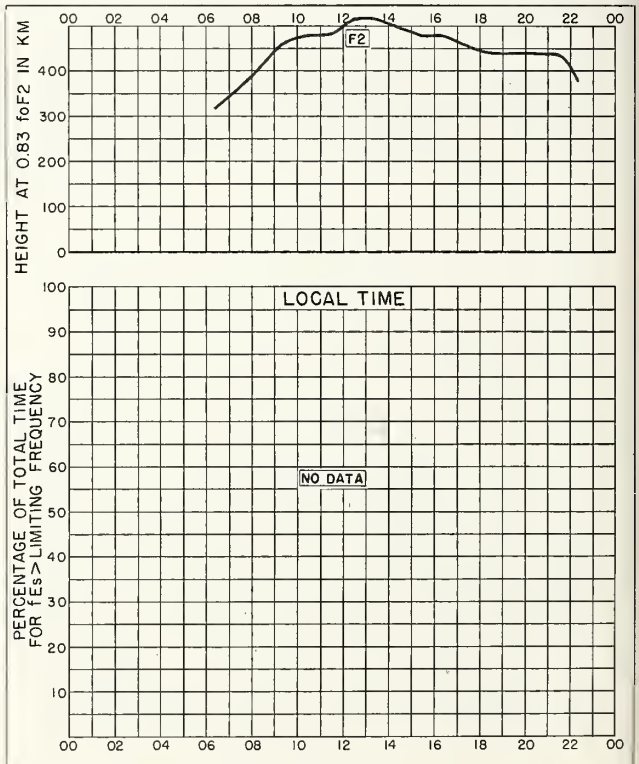


Fig. 120. MADRAS, INDIA MAY 1956

NBS 490

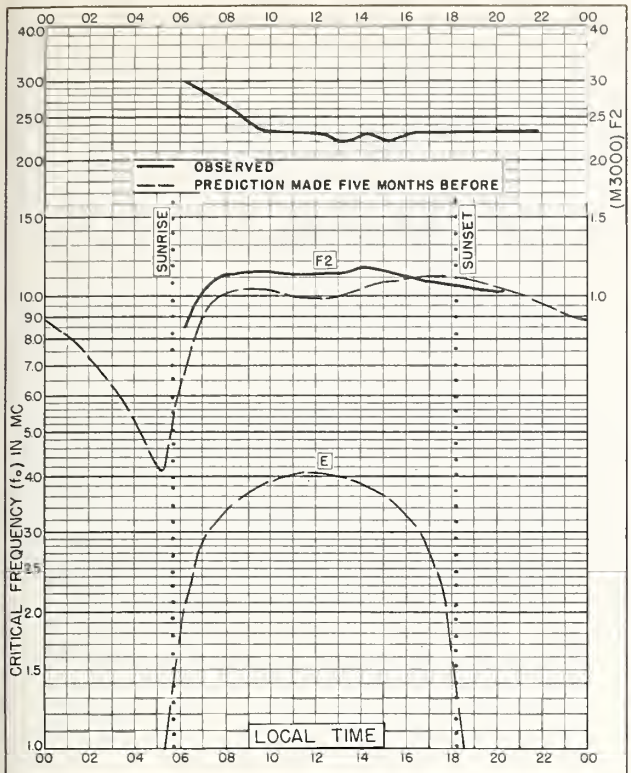


Fig. 121. TIRUCHY, INDIA
10.8°N, 78.8°E MAY 1956

NBS 503

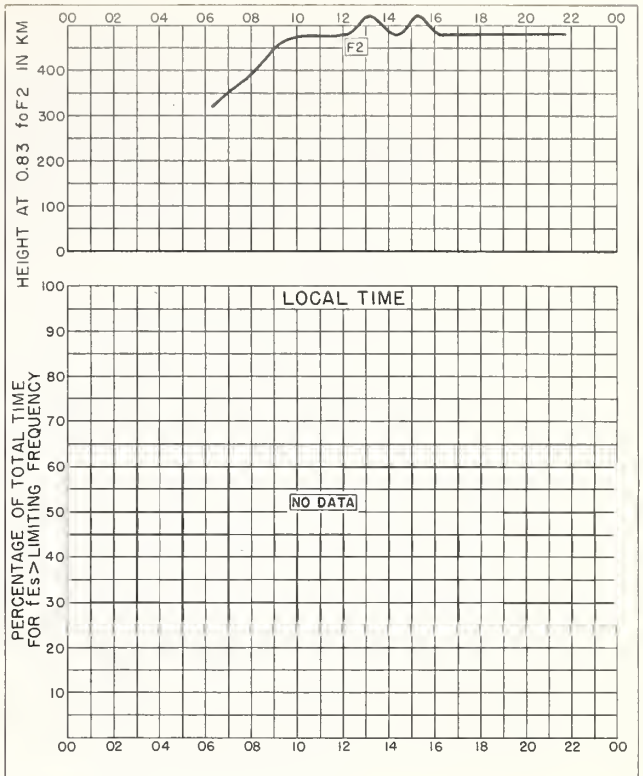


Fig. 122. TIRUCHY, INDIA MAY 1956

NBS 490

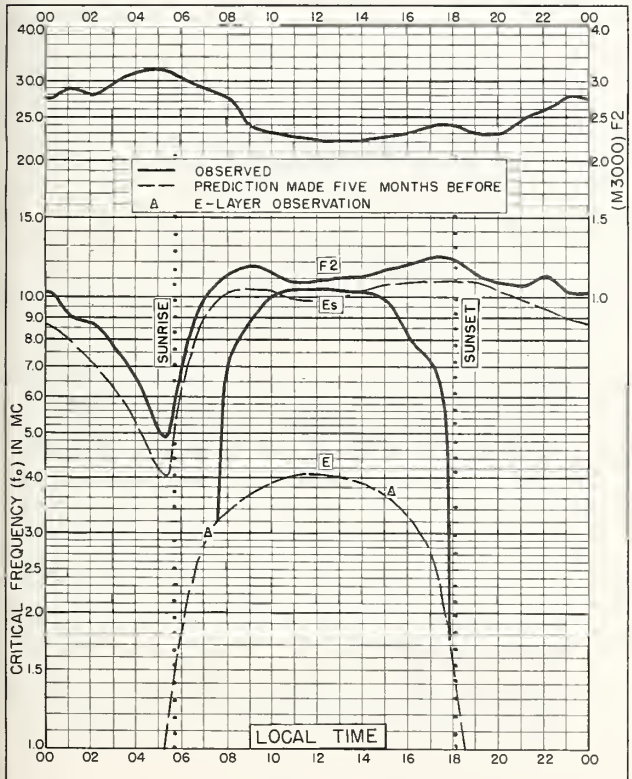


Fig. 123. KODAIKANAL, INDIA
10.2°N, 77.5°E MAY 1956

NBS 503

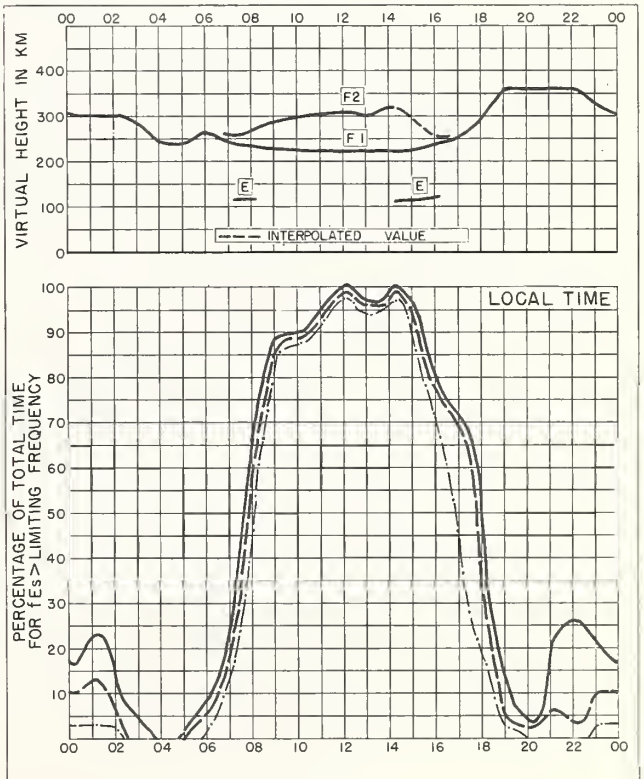


Fig. 124. KODAIKANAL, INDIA MAY 1956

NBS 490

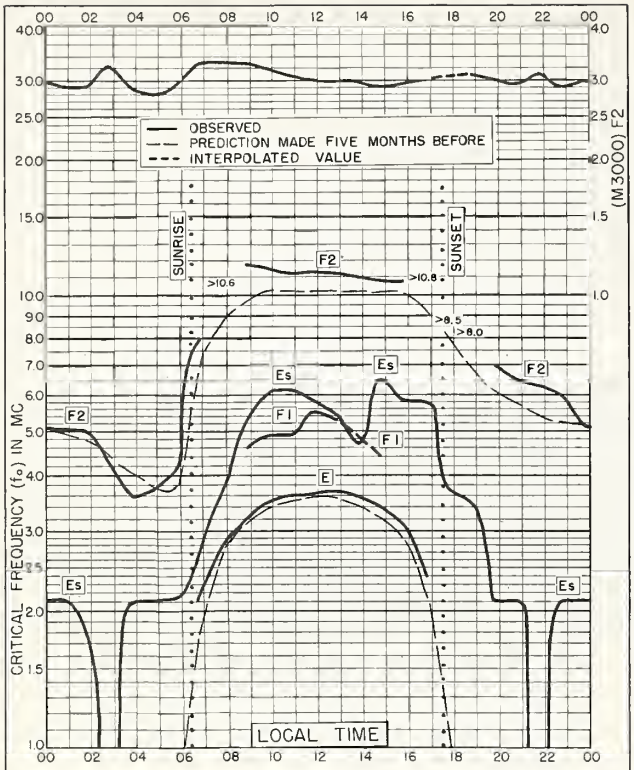


Fig. 125. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E MAY 1956

NBS 503

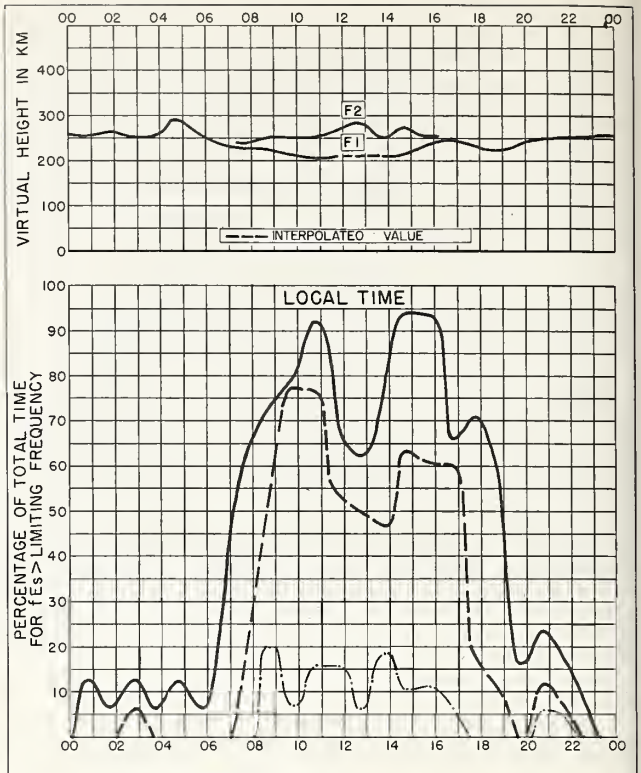


Fig. 126. TOWNSVILLE, AUSTRALIA MAY 1956

NBS 490

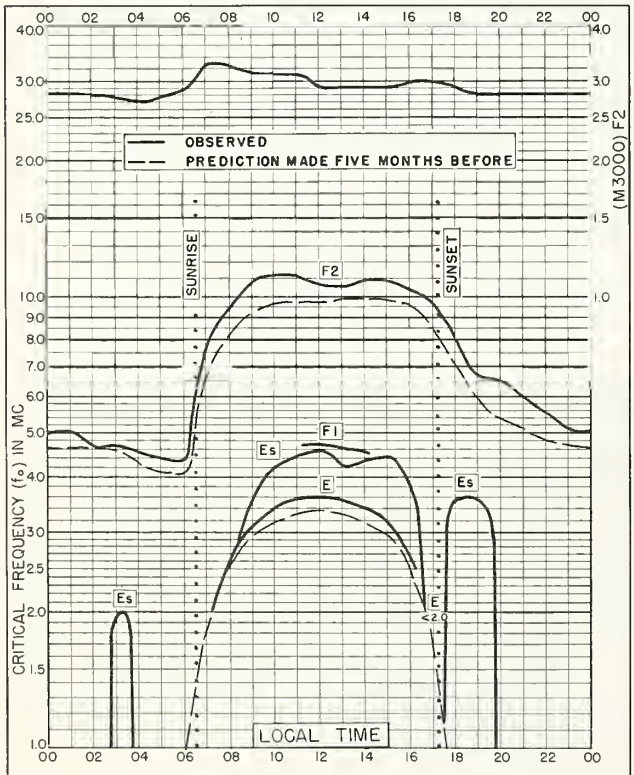


Fig. 127. BRISBANE, AUSTRALIA
27.5°S, 152.9°E MAY 1956

NBS 503

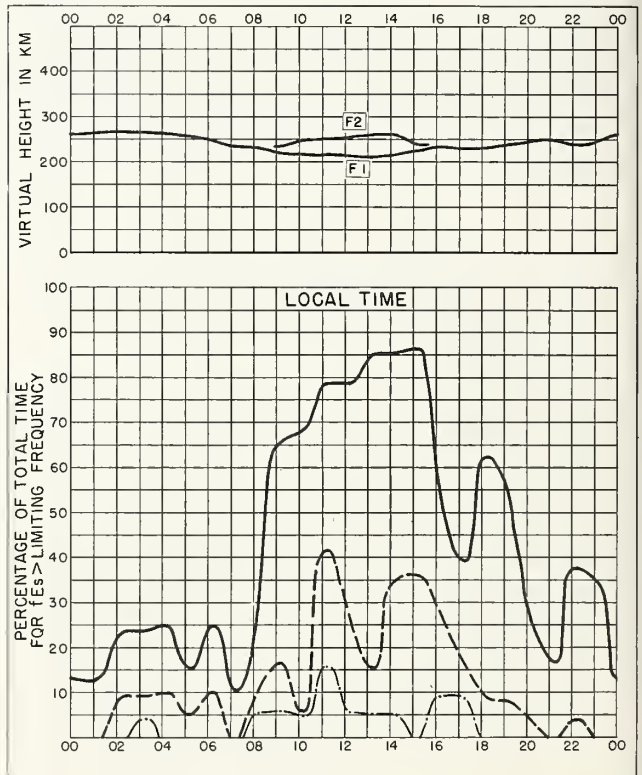


Fig. 128. BRISBANE, AUSTRALIA MAY 1956

NBS 490

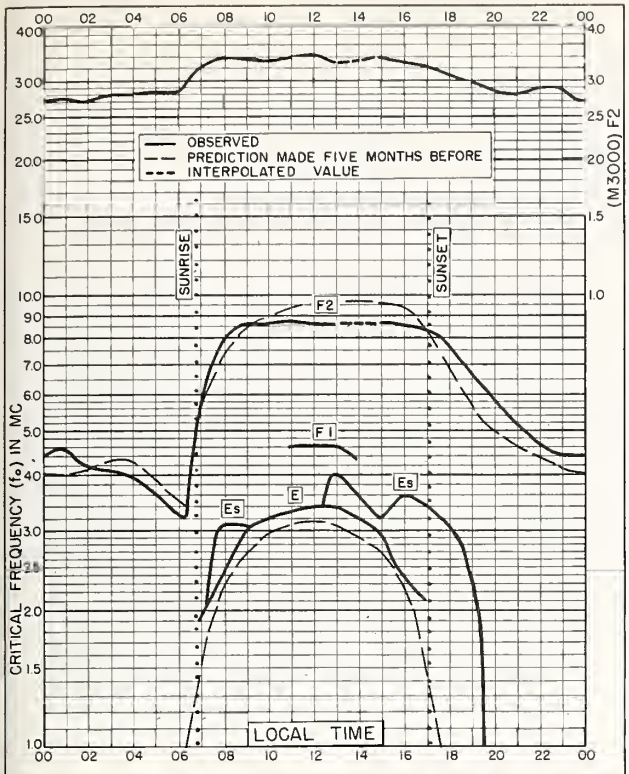


Fig. 129. CANBERRA, AUSTRALIA
35.3°S, 149.0°E MAY 1956

NBS 503

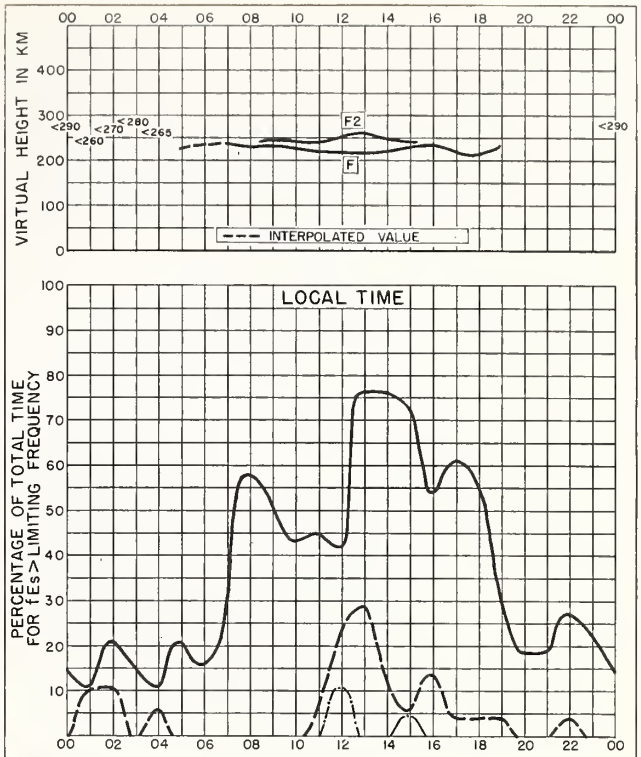


Fig. 130. CANBERRA, AUSTRALIA MAY 1956

NBS 490

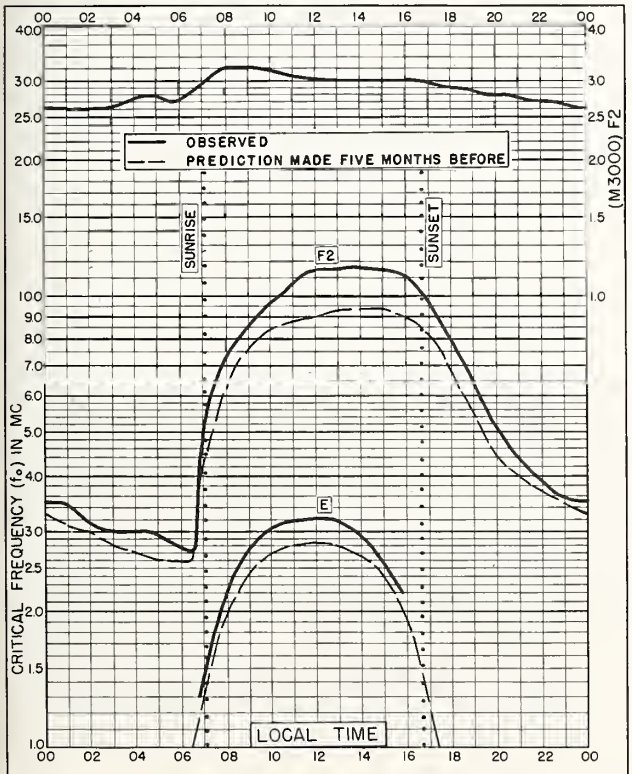


Fig. 131. HOBART, TASMANIA
42.9°S, 147.2°E MAY 1956

NBS 503

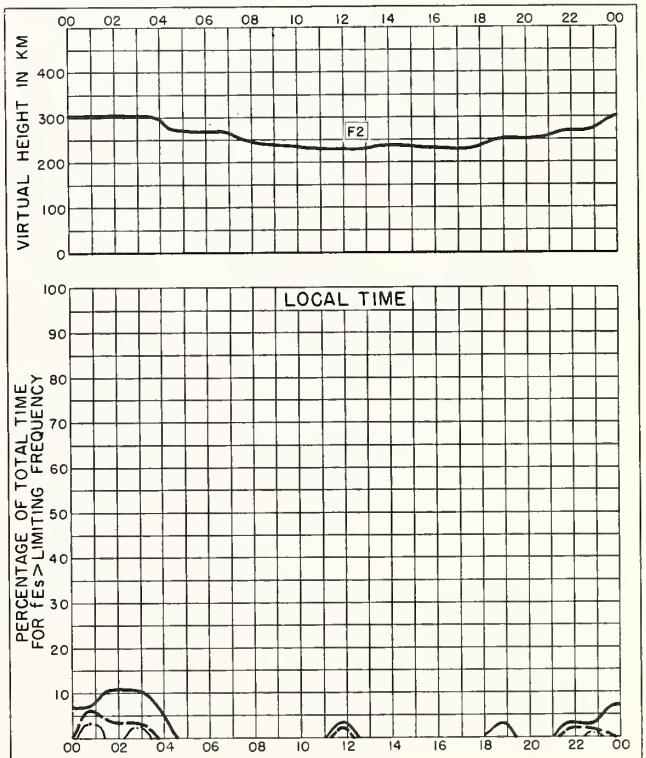


Fig. 132. HOBART, TASMANIA MAY 1956

NBS 490

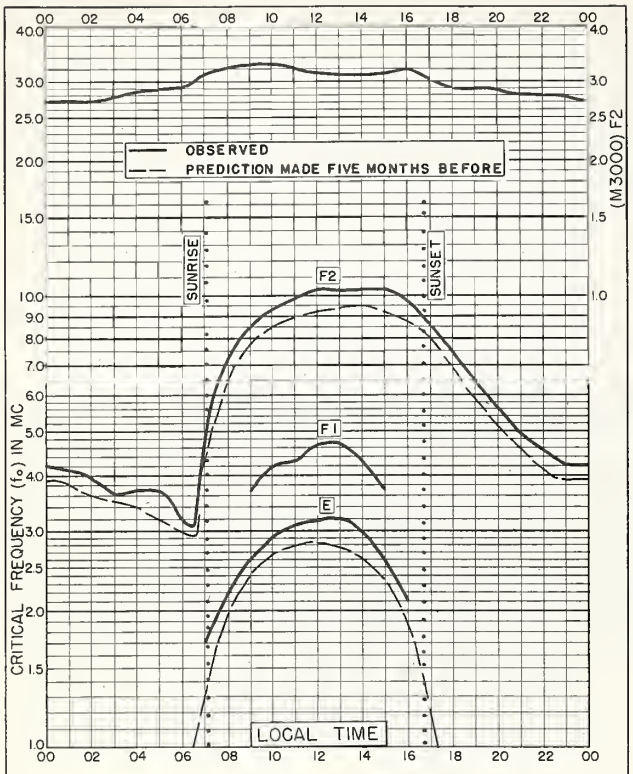
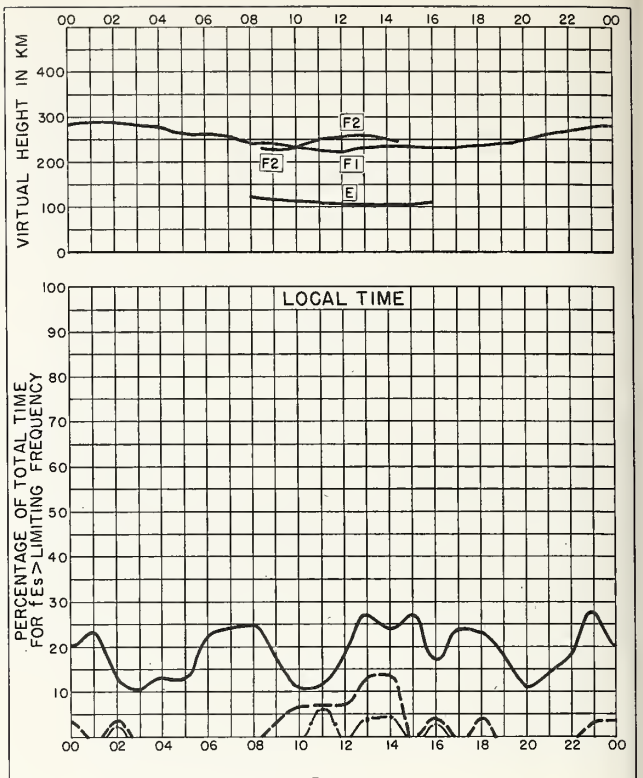


Fig. 133. CHRISTCHURCH, NEW ZEALAND
43.6°S, 172.8°E MAY 1956

NBS 503



MAY 1956

Fig. 134. CHRISTCHURCH, NEW ZEALAND

NBS 490

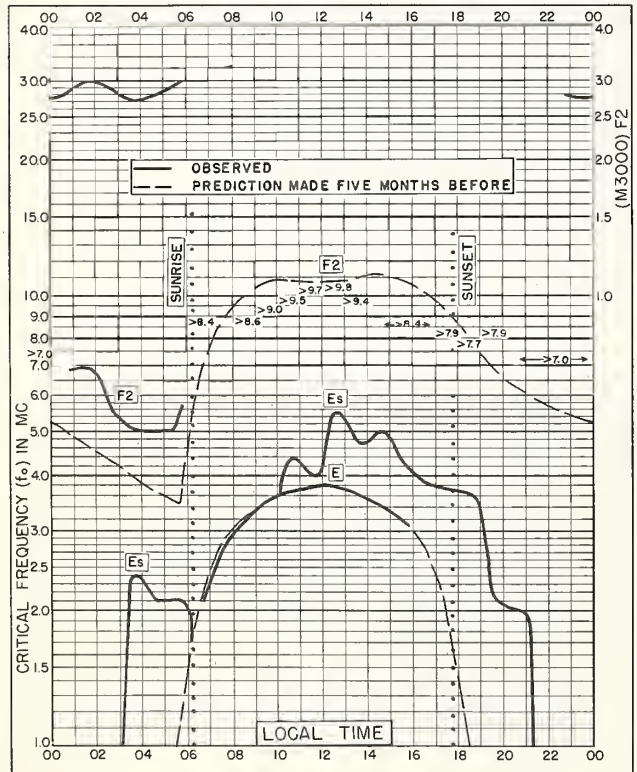


Fig. 135. TOWNSVILLE, AUSTRALIA
19.3°S, 146.7°E APRIL 1956

NBS 503

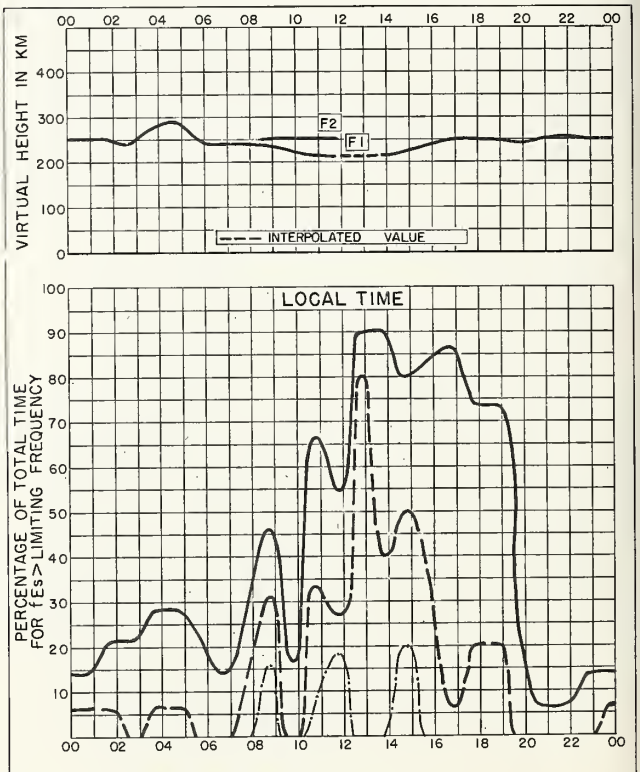


Fig. 136. TOWNSVILLE, AUSTRALIA APRIL 1956

NBS 490

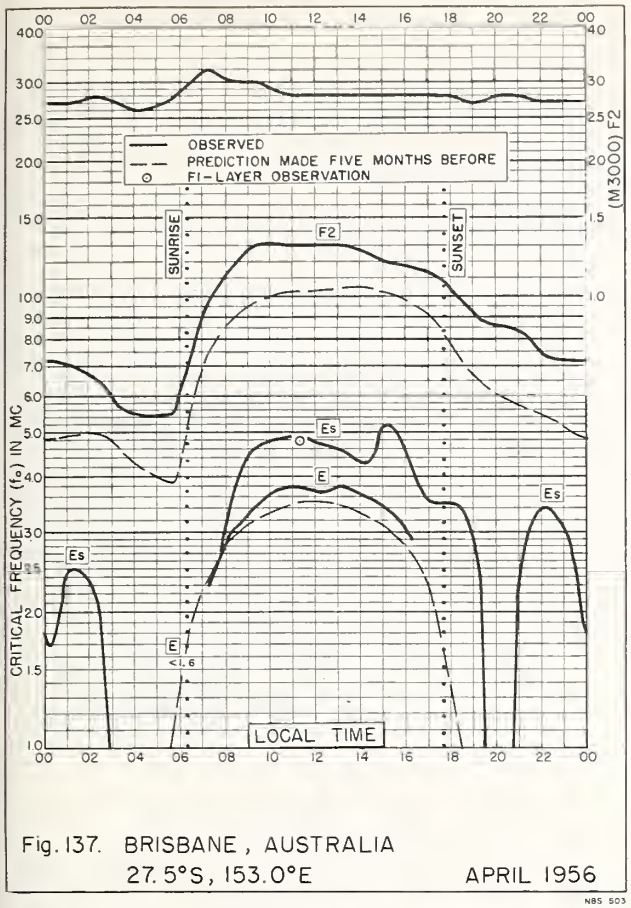


Fig. 137. BRISBANE, AUSTRALIA
27.5°S, 153.0°E APRIL 1956

NBS 503

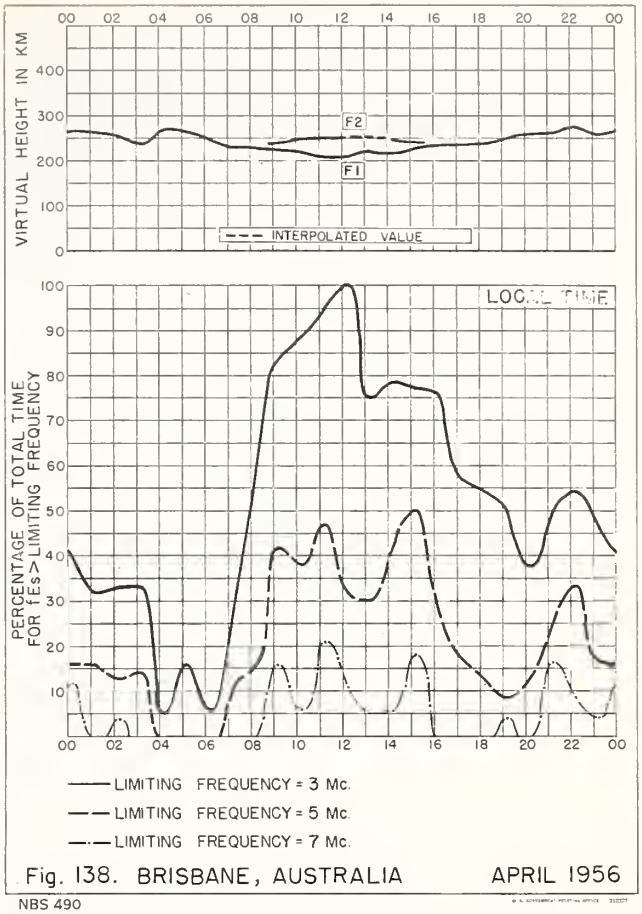


Fig. 138. BRISBANE, AUSTRALIA APRIL 1956

NBS 490

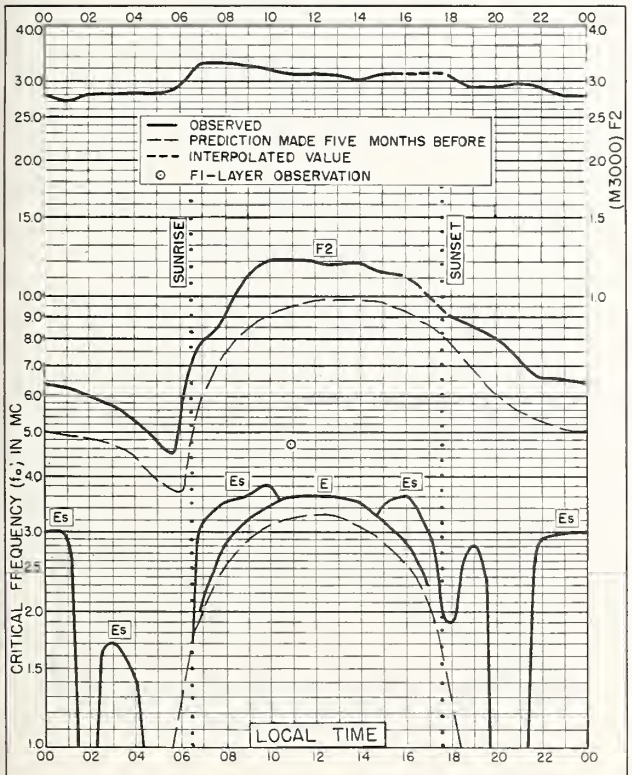


Fig. 139. CANBERRA, AUSTRALIA
35.3°S, 149.0°E APRIL 1956

NBS 503

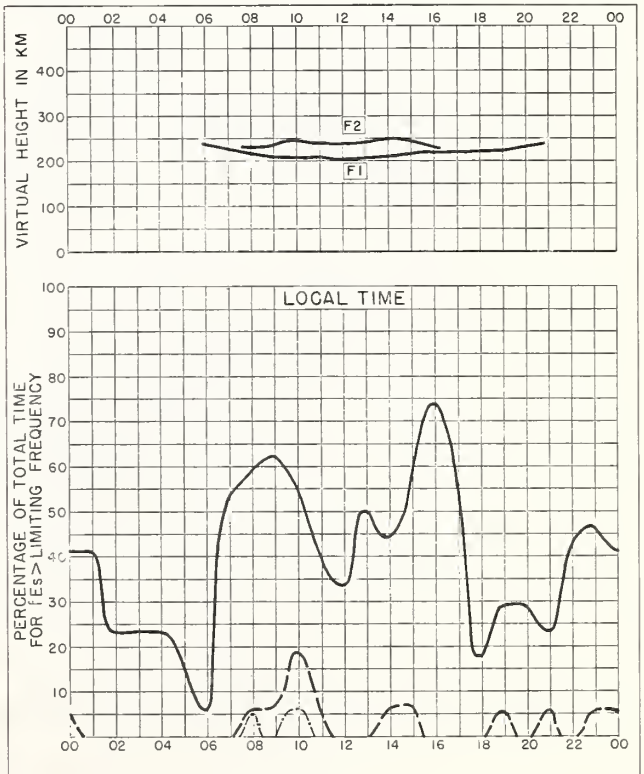


Fig. 140. CANBERRA, AUSTRALIA APRIL 1956

NBS 490

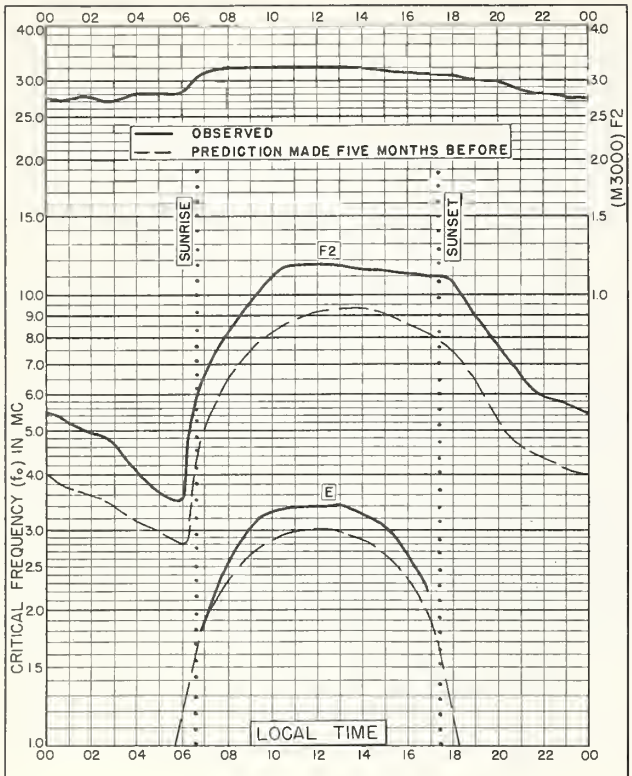


Fig. 141. HOBART, TASMANIA
42.9°S, 147.2°E APRIL 1956

NBS 503

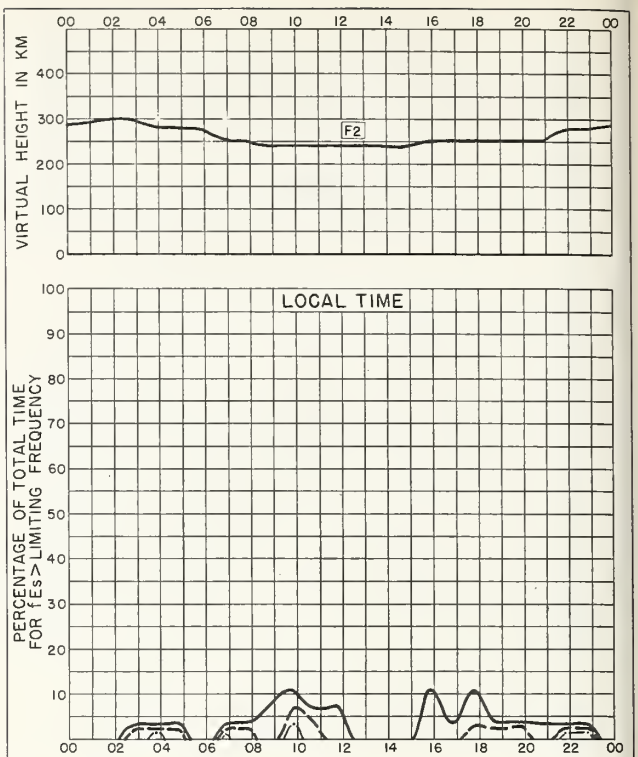


Fig. 142. HOBART, TASMANIA APRIL 1956

NBS 490

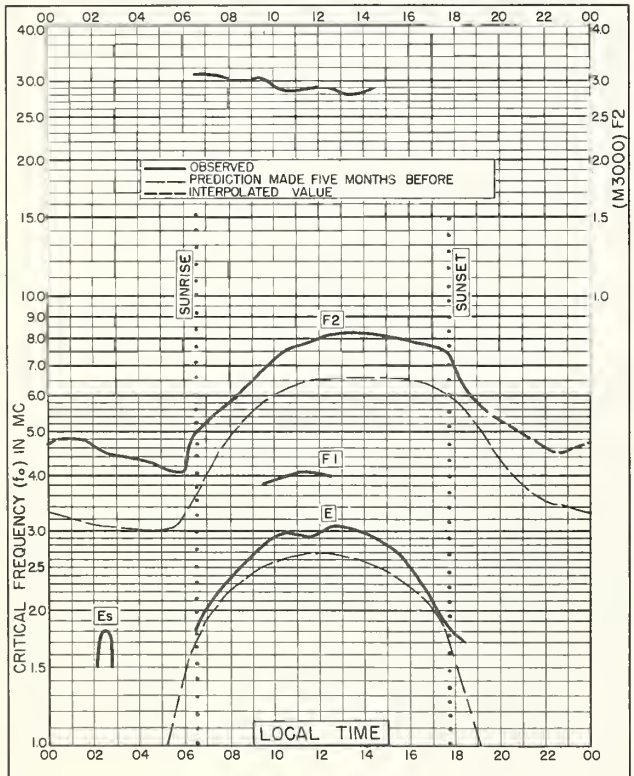


Fig. 143. LULEA, SWEDEN
65.6°N, 22.1°E MARCH 1956

NBS 503

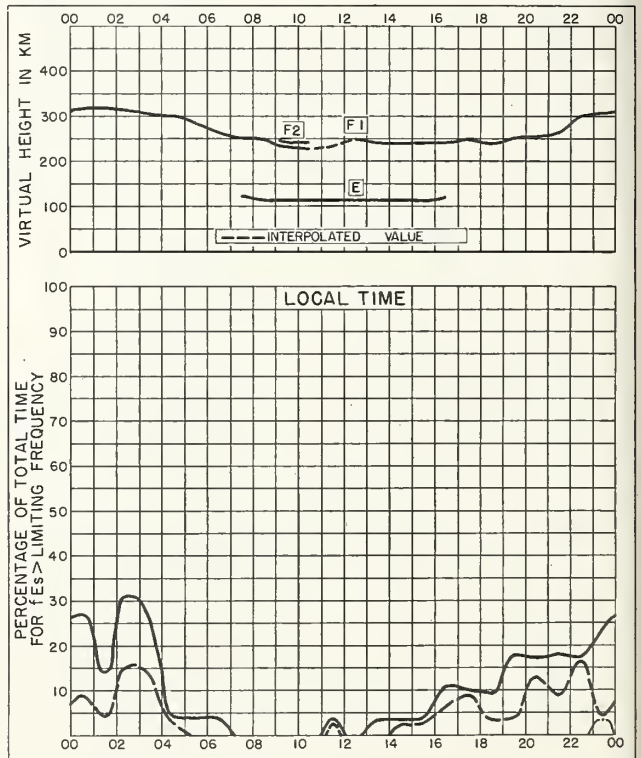


Fig. 144. LULEA, SWEDEN MARCH 1956

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